Industrial FINISHING

Reg. U. S. Pat. Office

Devoted to Product Finishing in the Factory

Vol. XIV, No. 5 MARCH, 1938 $2.00 a Year

Contents of this Issue

Letters from Readers of Industrial Finishing 7
Light Colors Predominant in New Furniture Finishes 10
Organic Coatings for Finishing Washing Machines 15
Finish on Zephyr Cars—The New Ford Finish 19
The Finishing of High Grade Furniture—III 23
Reproducing Wood Grain on Metal Surfaces 28
Machinery Painting — Applying Coatings Over a Glossy Surface 38
What's New 42
Questions; Answers 48
Editorial 62

Off-Color Troubles 13
Hilo Display (photo) 14
Finishing Materials and Supplies 14
Streamlined Truck 18
Painting Duralumin 21
Better Spray Guns 22
Rudd Lacquer and Sealer Corp. Appoints Representatives 22
Gustav O. Zeller Offers Consulting Service 22
John Dahlquist to Represent Dolan in Jamestown, N. Y. 22
Gehnrich Corp. (Ovens) Appoints Representative in Detroit 26
Lower Cost Upkeep Painting 37
Humidity of Industrial Air 37
Maas & Waldstein Fire Chief 40
Mixer Bulletin Reveals Latest Developments 40
Prevents Gas Explosion 40
Buys Wrinkle Finish Patents 60
Lawrence-McFadden Co. Building New Factory 61
Despatch Oven Company Reelects Officers 61

"Classified Advertising" Section 66
Advertisers' Index 67

Published by

Practical Publications, Inc., 222 East Ohio St., Indianapolis, Indiana

Eastern Office: C. A. Larson, Mgr., 254 West 31st Street, New York City; Phone, Penna. 6-9049

Reminder

We have developed so many new and interesting items that we have neglected to remind you of our long established leaders.

WATEROIL STAINS—positively the finest available, in all the newest shades. Guaranteed uniform—no throwing out of color, or changing with age. Fast to light—quick-drying, non-grain-raising and non-bleeding.

DU-BAR BLEACH—the most powerful available—single spray odorless application. Satisfaction guaranteed.

NO. 1900 CLEAN-UP POLISH—absolutely eliminates bluish bloom or haze—leaves surface clear, clean, free from dust collecting or finger marking.

RUB-LESS LACQUERS, FLO-SMOOTH THINNER—new, basically improved. Radically different.

For the best of everything new, write:

V. J. DOLAN & COMPANY, INC.

MANUFACTURERS

"UNQUESTIONABLE QUALITY" WOOD-FINISHING SUPPLIES

1830 NORTH LARAMIE AVENUE CHICAGO, ILLINOIS

Cotton
Wool
Rayon

FLOCKS

of superior quality recognized by leading users

Give your products that colorful and intriguing finish that is obtainable only with cotton, wool or rayon flocks applied by spray gun or screen stencil process.

Use only the best flocks and adhesives. Write us and we'll tell you where to get them.

CLAREMONT WASTE MFG. CO.

CLAREMONT, N. H.

The Country's Leading Makers

ADVERTISING PAGES REMOVED

Letters from Readers

OF INDUSTRIAL FINISHING

Editor's Note—These letters have been promptly answered and all of the inquiries have been referred to advertisers in the magazine. They are published here to indicate or suggest certain interesting trends of thought and activity in the industry, and to encourage further inquiries, comments and suggestions. The names and addresses of firms or individuals whose letters are published here may be had by writing to this office, or letters sent to them in care of this office will be forwarded at once.

Baked Crackle Finish

Please tell me if there is such a thing as a baked crackle finish. By this I mean a crackle enamel (not referring to wrinkle finish) that can be baked at a certain temperature to get a tough durable finish. If such can be had please refer me to the manufacturers.

If such a finish cannot be had, would you suggest using the crackle lacquer and giving this an over-spray of a clear synthetic of some kind, and then baking?—W. R. Co. (Molded Fibre Products).

Brushing Crystal Lacquer

Would you be so kind as to give us the names and addresses of two or three lacquer manufacturers that make crystal lacquer to be applied with a brush and to perform the crystal effects without the necessity of an oven? We don't want the crystal spraying lacquer which crystallizes at a certain oven temperature. We know of several makes of this later one. What we want is a brushing air-drying crystal lacquer that crystallizes at the normal ambient temperature. We know such crystal lacquers are made, but we don't know who makes them.—A. C. Co. of Cuba.

Art Metal Finishes

Will you please furnish me information on art metal finishes, such as shrivel, wrinkle, morocco, crackle, frostine clear and undercoaters, and other crystallizing finishes; also graining machines, and stencils? I will appreciate it very much if you will send me a list of manufacturers handling these items, or refer me to said manufacturers for sample cards and particulars.—J. O. D. (Paint & Eng. Dept.) Manila, P. I.

Silk Screened Label on Glass

We have before us a bottle that has a paint label affixed directly to the glass. It will stand washing solutions and cannot be scraped off. Is this silk screen work? Or a transfer? Could you give us an idea on the best way to accomplish this?

The bottle we wish to use is a soft drink beverage bottle. The idea is to save labeling and loss.—H. R. Co. (Display Service).

The label has evidently been applied by the improved silk-screen stencil process.—Ed.

For Sanding and Polishing Metal

We are asking your aid in contacting some firm manufacturing endless belt sanders suitable for use on metals of all kinds. We are manufacturers of ornamental metal work, and in the past have had a lot of hand polishing and cleaning up of

SPECIFIED INDUSTRIAL FINISHES
for Metal, Cloth, Wood, Paper, Leather, Rubber

CLEAR METAL LACQUER 247

The "7" reasons why "247" has merited continual approval:

1. COLOR—NEARLY WATER WHITE.
2. POSITIVE ADHESION.
3. A REALLY TOUGH FILM.
4. EXCELLENT OUTDOOR DURABILITY.
5. PREVENTS FORMATION OF SPOTS.
6. SPRAYS WELL.
7. EXCEPTIONAL FLOW.

RAFFI & SWANSON, Inc., CHELSEA, MASS.

Manufacturers of INDUSTRIAL LACQUERS SINCE 1923

GLIDDEN
Everywhere on Everything

GLIDDEN PRODUCTS NOW CARRY THE FAMOUS "TIME-TESTED" MARK OF QUALITY

Unceasing Research Assures NEW AND BETTER FINISHES *by Glidden*

Place your finishing problems into the hands of men who have spent a lifetime in the research and development of industrial finishes. Many of the most outstandingly successful products in the industrial finishing field are the result of Glidden skill. Ask a Glidden representative to help speed your finishing operations, and cut costs.

THE GLIDDEN COMPANY
National Headquarters, Cleveland, Ohio
Factories in:
Reading, Penna. • Chicago • Minneapolis
St. Louis • New Orleans • Los Angeles
San Francisco • Toronto, Canada

Kindly mention INDUSTRIAL FINISHING when writing advertisers

aluminum, brass, bronze and iron. We feel sure that there must be someone making some type of equipment that would do this work mechanically, at least a good part of it, and we are asking your aid in contacting such a manufacturer.—L. Crafts Co.(Ornamental Work in all Metals).

Violin Finishes

Would you please inform us where we can procure a high grade stain, filler and varnish for violins? We want a product of proven merit, and the recommended procedure for applying same.—K. M. Co. (Automotive Appliances).

Silk Screen Stencils

We would appreciate any information you can give us regarding the making of silk screens. We desire to use the silk screen process in place of decals on our enameled stoves.—E. S. Co. (Gas Ranges).

Heat-Resistant Paint

In your January issue, on page 65, you mention a heat-resisting aluminum paint that will withstand temperatures as high as 1700°F. Due to the fact that we have had considerable trouble keeping paint on one of our stacks in Jackson, Miss., and to date no one has been able to furnish a material that will not come off within two or three weeks after it is painted, we would certainly appreciate having this manufacturer furnish us a quart sample.—B. B. Co. (Furniture).

Maintenance Painting

We are interested in determining the processes in which waterproof paint would be used, such as in dairies' maintenance work. Do you have any information on this subject?—F. S. Co.

Burn-Proof Finish on Billiard Tables

In one of your interesting editions, there was an ad. in which the manufacturer claimed to have a finishing material that would not burn . . . . for tables, bars, etc. We manufac-

(Continued on page 64)

In the
STILLE-YOUNG
factories at Chicago, Illinois, and High Point, North Carolina,

there are modern methods and up-to-date equipment for the production of

lacquers
sealers
stains
fillers
enamels
varnishes

that will give you the results you need.

Tomorrow's finishes
. . today

THE
STILLE-YOUNG
CORPORATION
CHICAGO, ILLINOIS
HIGH POINT, NORTH CAROLINA

Light Colors Predominant

BY ROSALIE FLANK

STANDARD cabinet woods have come from behind their former disguises of varnish and stain to present a fresh new angle that is destined, it is believed, to provide an inspiration to both designer and manufacturers on future designs. It is generally agreed that never before has the true beauty of the natural wood been emphasized with such dramatic effect as on the new pieces introduced at the recent national home furnishings show in the American Furniture Mart, Chicago, Ill.

Generally, finishes are light; rubbing, shading and highlighting show evidence of having been performed with extreme care.

Severe bleaches, in which all pigment is removed from the wood, have gradually disappeared. In their place we find furniture samples finished in intermediate tones, midway between the colorless bleach and the dark stains of another decade.

No set color can be determined as specifically representative of the new trend; each manufacturer offers a slightly different variation. However, all agree on an intermediate tone ranging from a pinkish to a brownish cast.

Blond chest of glass-front drawers has attractive doors which show wood grain.

Various Cabinet Woods As They Appear in Furniture

Mahogany ranges from salmon pink, the natural shade of the freshly cut wood, through ambered tones and down into a warm red brown of the aged wood. Walnut appears in bleached effects to a greater extent than heretofore; it is shown in all shades ranging from a subtle gray tone to warm shades of biege and on into the darker scale, even competing in tone with oak on some pieces of Elizabethan design.

More pine makes an appearance on breakfront cabinets and on din-

in New Furniture Finishes

AMERICAN FURNITURE MART
CHICAGO, ILLINOIS

Comfortable chair of Swedish modern and table finished in blond mahogany.

ing room and dinette sets—a shiny banana yellow color, tinged with green, offering a new note to the traditional pieces which are veneered.

Maple and birch are presented in various shades of natural or intermediate bleached finishes. The traditional Early American pieces, however, cling to the warm brown tones.

Bleached gumwood adds a new note to the lower-priced modern lines; many varieties of less expensive, naturally light woods are employed in fashioning the new samples.

How Veneers Are Used

Less bizarre effects in combining woods are noted; manufacturers prefer to blend rather than contrast veneers to achieve new effects. Rare vividly striped or colored woods are used sparingly, confining themselves to trims accenting structural lines.

The practice of combining three and sometimes four cuts of a single wood on a bleached suite, with each veneer taking the bleach in different intensity according to its cut, appears to be spreading; it is a trend worthy of comment.

Frames for Upholstered Pieces

Upholstered living room pieces in 18th Century, French and modern designs have bleached frames —mahogany, walnut and maple sharing equal honors. Glazing and filling add either a mellowed antique brown tone or a modern, soft pinkish cast.

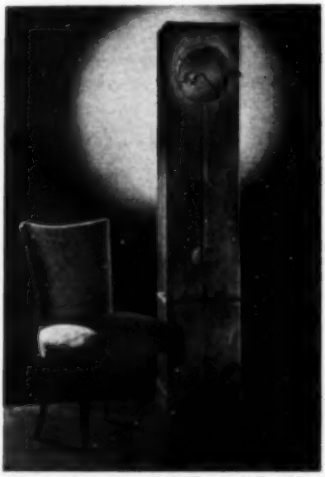
Upholstery fabrics are blended to the frames. Rose is a popular color used in many shades ranging from light pastel pink to deep American Beauty. Wheat, champagne and natural linen shades add a pleasant contrast or blend with the light frames. Shades of blue, chartreuse and off-shades of

intense colors are also employed effectively with the light frames.

Dining Room and Bedroom

Dinette suites have responded to the bleached mode by appearing in many variations of bleached maple, birch, oak and tropical woods in shades of wheat, tweed, tawny, etc. Rust and shades of orange are favorite colors for cushions on the dinette chairs, with reds, browns, greens and blues following in close succession. Sphere-like glass drawer pulls add a new touch as do the natural wood pulls fashioned of the same wood as the suites they adorned.

Traditional dining room pieces reflect more of the subtleties of the bleaching vogue, mahogany, walnut, acacia, butternut, oak and other popular cabinet woods appearing in natural, clear tones with clear varnishes or light stains producing highlights that bring out hidden values from the depth of the wood. Oak in dinettes continues to run to oyster white and pastel tints. In Elizabethan styles oak takes on a nut-brown walnut cast and in some instances walnut is used — finished to resemble oak.



New version of grandfathers clock, done in blond mahogany. Dial, hour hand and pendulum motif of rich polished brass.

Bedroom lines make widespread use of light finishes with blue glass inlays adding accent to the simplified modern suites as well as traditional pieces. Leather inlays on traditional pieces are on the ascendancy, a new method of distressing the leather adding to its appeal on 18th Century pieces. Modern, too, makes use of leather inlays and occasional pieces, bedroom case pieces and desks are favorite mediums upon which leather is employed.

Juvenile and Summer Furniture

In juvenile furniture pastel enamels are in favor. Air-brushed motifs, such as drummer boys, bubbles, animals and characters understandable to children are artistically applied in harmonizing colors to the enameled suites. In many instances, white is used in combination with a single color, or two pastel colors are blended with a third contrasting color used in the decorative motif.

Summer furniture favors white enamel, each manufacturer making individual claims proclaiming the weather-resistant qualities of his product. Salt tests, sun tests and water tests have been called into service to substantiate guarantees of weather resistance. Flat ribbon steel and tubular metal are used on garden chairs and tables. Gliders show a liberal use of enamel on arms and standards.

A new two-passenger "cabana" designed by Alfons Bach; frame, white enameled metal tubing; upholstery, canary yellow rayette.

Brilliant colored accents in upholstery are shown—most of the upholstering being chemically treated to withstand the ravages of sun and water. Dubonnet emerges as the most popular new color on summer furniture, with cherry red, canary yellow and non-fading blue following. Modernized nautical, floral and astronomical motifs are favorite decorations. Plain colors, piped with white or contrasting tones, used a simple, centralized decorative motif for distinction.

Glass-topped tables on the outdoor lines have receptacles in their base for growing plants. Bentwood, rattan and wicker in natural and painted colors are also in evidence.

The development and perfection of automatic reciprocating spray machines for the finishing of flatware on a conveyor, the great demand for water-wash and water-curtain spray booths, and the ever increasing number of orders for completely air-conditioned spray-finishing rooms are some of the outstanding equipment developments of 1937—and a splendid indication of the possibilities of spray finishing for 1938.

Off-Color Troubles

IN HANDLING oil enamels there has been considerable trouble in maintaining uniformity of color, due to settling of pigments; therefore it is necessary to prevent the pigments from precipitating. As the pigment falls it takes the tinting colors with it. It is important to keep these two together, or in suspension we will say. To do this, proper thinning is necessary. If the enamel is thinned beyond a certain point the pigments will be heavier than the vehicle, and falling is sure to take place.

I have handled numerous enamels (both lacquer and oil) and the new synthetics. I have had less trouble with lacquer than the other two because the pigments are lighter than in the others. There are no heavy fillers used in lacquer enamels to give them bulk, as in the other two types of materials. In oil enamels no exact procedure of thinning can be given, as it depends upon the conditions and temperature of the finishing room; also the spray equipment.

Let us take up the popular synthetics, as practically all are more or less on a synthetic base. In this type of finish flocculation and settling are two troublesome defects, but these can be reduced by proper care in manufacture.

It is imperative that the finisher do a little experimental work in thinning his enamels in order to determine what reduction is best for his particular needs. This will take all of the guesswork out of reducing.

In some instances I have gotten hold of enamels that settled rapidly. In one particular case I took a graduate glass and reduced the enamel the proper amount and watched it to determine how long it would be before the settling commenced to take place. Then I informed the spray man of what I had learned and he worked accordingly. At the necessary intervals he would force the enamel back into the container and thus thoroughly agitate the material. We were using a 5-gallon container, gravity feed. This did not interfere with production in any way, as it took only a few seconds for him to place his hand over the spray head and shoot the enamel back into the container. The force-feed system with an agitator is highly recommended for factory use where there are considerable quantities of enamel to be sprayed.

To sum it all up, it seems that most of the off-color trouble can be traced to the thinning of the material, which is true in the majority of off-color cases. Sometimes the paint manufacture is at fault, caused mostly by poor light at the factory. If the finisher will watch his thinning and check up with his spray man, his off-color troubles will be negligible.

I have found that a good thinner for some of the synthetic type enamels consists of:

Naphtha ..... (parts)	70
Hydrocarbons	30

The hydrocarbons may be either toluol, benzol or preferably xylol because xylol is slower than the other two, therefore better leveling will result.—F. R. BOYNTON.

Finishing Materials and Supplies

A 30-page catalog of finishing materials, supplies and small equipment — all alphabetically indexed — lists the products of The M. L. Campbell Co., Kansas City, Mo.

Display of Hilo finish coatings at Heating & Ventilating Show in New York.

Organic Coatings for . . .
FINISHING WASHING MACHINES

by C. J. Branolke

One man's observations (after a study at close range) in regard to the performance of a new type of bake finish that seems to be exceptionally well adapted for use on modern washing machines.

NITROCELLULOSE lacquers have been in the limelight for a number of years for finishing washing machines. The trend however in the past year or so has been a gradual slipping away from an all lacquer job, to that of the newly developed organic coatings.*

Why is this, after so many hundred thousands of machines have stood the test of time and come away with high honors? We might say modern times demand more luster and more perceptible body on the work.

What has this new type of finish over that of the good old nitrocellulose enamels? Automobiles have shown us that lacquers can "take it," and still after three or four years the cars look good.

Recently I had the opportunity to study this question at close range and the version I have formed is, I believe, worth passing along to others who possibly are right now trying to decide what to do in the change-over from lacquers to organic finishes.

In the examination of 50 high-grade washing machine lacquers recently, in all the well known colors, I found only four that were of the highest integrity—meaning that the others were good lacquers, but were deficient in just one quality possessed by the best of the group.

Usual Lacquer-Finish Jobs on Pressed Metal Products

Washing machines are usually finished in a 2-coat job; that is, two coats of the same colored lacquer are usually applied . . . . The lacquer used must have exceptional adhesion, elasticity, be highly resistant to soap and alkali solutions, must not discolor under constant washing with these solutions, and cannot turn color in the sun or in the darkness.

A lacquer that is applied to cold-rolled steel must have sufficient adhesion resistance to withstand the cold and heat over a period of years, along with the other resistance mentioned. This adhesion I have found must be in the nature of a film that is hard enough on the surface to stand abrasion, be very elastic so

*See note on following page.

a knife test will show definite curling, and still be highly resistant to the extreme alkali immersions.

I have noted that the highest quality lacquers will have an adhesion which is best described as follows: Testing with a knife, the film must not scratch free from the metal, but the knife will actually take part of the metal along with it, or possibly the metal is actually polished by the blade; the lacquer actually looks as though it were almost etched into the metal surface. I have seen lacquers of this nature which have retained this wonderful adhesion and elasticity for periods of eight months to 15 months.

Testing Lacquer Coatings

Due to solvent retention, lacquers will usually attain their final hardness in about six weeks, but after one to two weeks drying the adhesion will show up and the good can be separated from the bad. It is possible to almost predict the results of the initial showing of a lacquer by this difference in adhesion and elasticity. It is also possible to get a good idea of the comparative qualities of lacquers after two weeks drying by making spot tests with strong thinners—or better, with straight ethyl acetate. Those that have the most resistance to alkali and the most toughness will be softened the least by the spot-test method. These seem almost like an oleo-resinous enamel and have a tendency to wrinkle or raise under acetate solvents. It should be remembered that discoloration in alkali is negligible only if alkali-resistant pigments are used.

The ideal lacquer that I have seen is 100% alkali proof, as far as color is concerned. (It will not discolor in a solution of 2-oz. of Gold Dust to the gallon of water, which has been heated to 180°F., and allowed to remain overnight.) After immersion in an alkali solution overnight it will not show a soft film, and when allowed to dry off it will attain its original hardness with no perceptible dulling of the gloss or loss of adhesion. This lacquer will stand excessive abrasion tests and will not get brittle over an 18-month period; also it will not fade in the sunlight and will not turn color in dark warehouses.

---

*Regarding the Editor's questioning of my use of this term "organic" finishes instead of say, "synthetic" or some other name, I will give you my reasons for calling this finish "organic," and I believe it will be clear to you.

A line of demarcation is necessary in setting this new white finish apart from the so-called synthetics previously marketed in this country.

Most of the synthetics to date have been straight alkyds, drying-oil modified alkyds, and non-drying-oil modified alkyds, which have come under the classification for refrigerator whites and washing machine coatings.

Organic finishes, strictly speaking, are synthetic finishes, but the new resin used in this type of white is one that does not react chemically until heat is applied, thus actually converting the colloidal solution of organic chemicals (such as urea and formaldehyde) into a final stage of resinification. Of course, a partial condensation or polymerization has been accomplished before putting into the can by the manufacturers.

If you prefer you may terminate this new finish a "chemical" finish. This will set it apart from the regular synthetics.

It should be emphasized that man-made resins are really organic: the old theories of organic materials being only those derived directly from plants and organisms has been broadened to include anything that is synthesized, and to contain ring structures or else long-chain structures in the molecule.

If you wish to be very exact and include a technical slant to the title you may say: "Synthetics of the heat-reactive type."—THE AUTHOR.

Organic Finishes—One Coat; Bake One Hour at 250° to 300°F.

Now then, let us take a look at the organic finish that is making great strides in this type of finishing. Most everything is being finished in white, so it should be the logical selection from the start. Organic finishes are necessarily baking products; they do not really exert their inherent qualities until baked. One-coat whites are hard to find, but they are being made and used to quite an extent. One double coat over bare steel and baked at 250° to 300°F. for a period of 60 to 70 minutes, results in a beautiful full glossy finish, that is porcelain hard. The longer the bake and the higher the temperature the more resistance is obtained. The higher the temperature, however, the more tendency to discoloration, but this is very slight compared to the old type baking whites.

Comparing the lacquer finish with the organic finish that has been baked for one hour at 250° F., we find the organic will show a build or body on the work which is only approximated by at least five coats of lacquer. It will have lots of luster, similar to a refrigerator finish. It will be very hard and tough, almost too hard compared to the ideal lacquer. The elasticity will be of a different order than that of the best lacquer. It will show more actual toughness, along with good elasticity and hardness.

The lacquer will spray at about 22% of solids, while the organic will spray at between 40% to 46% of solids. So, at once it is evident the organic will be consumed in less quantities and go farther per gallon. The organic will show a better color—be actually whiter —and have a b e t t e r covering power.

What Certain Tests Show

Put the lacquer and the organic into a standard alkali solution at 180°F. and allow to stay for 15 minutes; now wash the finished surface in cold water and observe the luster and softening of the films. The change will be very slight, if any, in either the lacquer or the organic. Now try another immersion at the same temperature and time interval; wash as before and note the lacquer will still be as hard as nails while the organic has softened up slightly and is s o m e w h a t punky when scratched, but this condition will disappear when the finish is allowed to dry thoroughly thus attaining its original hardness. The luster on the lacquer and also on the organic will be as good as new.

What then is the reason for this gradual swing to organics in preference to lacquer finishes? It is this: The organic will retain its elasticity over a period in excess of 18 months. It will deposit a thicker film in one spray coat, have more luster, stand more abrasion and also be more elastic, thus standing more expansion and contraction in heat and cold atmospheres, and will have more permanent adhesion than the lacquers. The cost of materials per machine will be from 15 to 25% lower.

The latest innovation in these heat-convertable or organic finishes is the fast baking whites, which will dry hard in 10 to 13 minutes at 325° to 340°F. A primer is needed however, which bakes at 400° to 425°F. for 12 to 15 minutes. This results in a film

that is very resistant to alkali without any softening or loss of gloss.

It is noteworthy to add that the more resistant films can be identified by their dry character while still hot. This also allows much leeway in assembly and handling when coming out of the oven. Also, it will be an indication of non-yellowing, the higher the heat without any discoloration. Most of the good organics will bleach out under heat and also under ultra-violet light rays.

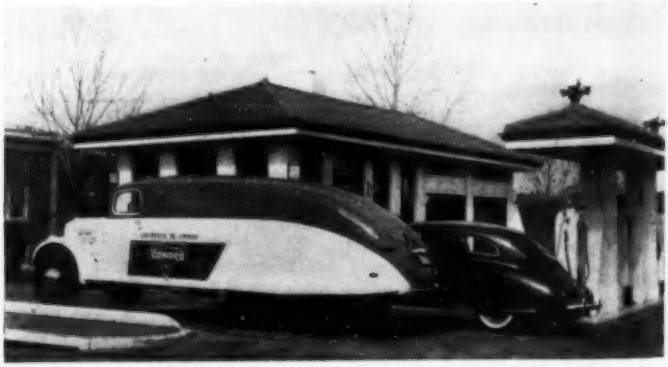
Streamlined Truck

THIS ultra streamlined truck tank was recently completed and delivered to the Continental Oil Co. (Conoco gas) by the Columbian Steel Tank Co., of Kansas City, Mo. Quoting from the Columbian Steel Tank Co.'s letter:

It is a striking example of the exceptionally smooth finish that can be achieved by manufacturers specializing in fabricating articles of individual specifications. You will agree that the finish of the unit in this photograph compares favorably with that of the 1938 Lincoln Zephyr which is shown in the background. The photograph has not been retouched in any way.

The design of the tank was suggested in an original sketch by Count Alexis de Sakhnoffsky, international stylist and noted authority on streamlining. In finishing the tank, all exterior welding was ground smooth. As in automobile body finishing, a special body solder was used to smooth out any irregularities in the tank shell. The entire tank was then buffed and cleaned for prime painting. After prime painting it was glazed with a metal filler preparation and sanded to give a perfectly smooth base for the finish painting. The installation of pre-fabricated chrome fittings, trim and emblem designs completed the unit.

The Continental Oil Company will use this outfit in connection with a companion coach to publicize the opening of new outlets.



One of the Continental Oil Co.'s ultra streamlined truck tanks recently put in service.

Finish on Zephyr Cars

THE NEW FORD FINISH

A COMPLETELY new automobile finish, far ahead of former finishes, was described in detail for the first time recently by a Ford Motor Co. technician.

"These enamels are composed of three parts new to their fields," he said. "We find new pigments, both synthetic and natural, new oil resin vehicles and new thinners are all used to achieve the original beauty and the lasting quality" proved by extensive experience running back over several years.

Synthetic Resin Enamel

The finish is a "synthetic resin enamel" with durability several times greater than the lacquers it has displaced in the Ford plant. The company uses millions of gallons of the new finish annually, and has found it so successful that it also is being used on the 1938 Lincoln-Zephyr.

"In describing synthetic resins, we must first define a resin as a solid organic body, transparent or translucent, insoluble in water but soluble in organic liquids such as alcohol esters or hydro-carbons. Formerly they were of vegetable origin, but recently organic chemists discovered how to synthetize them. The raw materials are not resinous at all. The widely known synthetic resin, Bakelite, is made from phenol and formaldehyde."

Of deep interest to farmers is the fact that one of the principal ingredients of the new finish is soya bean oil.

"The choice of oils in the vehicle of these enamels is a very important one. It may vary according to the many contributing and often conflicting requirements. Soya bean oil with the right proportion of China wood oil has proven best for the main part of the car surfaces, which takes the largest gallonages.

"Also important is the proper choice of a resin as well as the oil. While I referred to Bakelite in the start as a typical synthetic resin, the proper choice for enamels at present is a glycerolphthalate. The component glycerine you all know, and the phthalate part comes from coal tar naphthalene as phthalic acid anhydride. Neither is in any sense resinous, but are synthetized with the soya bean and China wood oil to a resin."

New Paint Pigments

New pigments developed in recent years for automobile finishes include a number of metallic oxides of exceptional durability.

"White pigments are no longer lead, but titanium oxide for opacity and antimony oxide for low rate of dulling. In the field of greens, many of these can be made of yellow oxides or iron

with white and black (which makes bluish gray) rather than chrome greens with marked improvement in color retention or lack of fading. Yellows made synthetically as organic pigment are very durable. Blues when dark are made of iron cyanides and when in light tints are made very durable in organic lakes or color pigments. Reds in former finishes either bright or dark—as maroons—were so poor in durability as well as so low in opacity as to be shunned by the car buyer and producer both. We have now, however, maroon pigments with a life equal to any color and with such opacity that the paint shop foreman finds maroon as easy as any to apply."

The successful application of the new enamel depended on discovery of a suitable thinner, and this was found in a naphtha of high solvency which was obtained as a by-product of kerosene refined for export to the Orient.

Clean Air in the Finishing Room

At every step of the complicated process of applying a high luster, long-wearing finish, great care is taken to see air in the spray booths and in the drying ovens is kept free of dust.

"In addition to the precaution of cleaning the air supplied to the spray booths, the walls and floors are covered with an oil, soap and water mixture. The interior of the ovens are coated with castor oil. To speak of air furnished to a spray room may sound unusual, but to maintain a clean room with no chance of infiltration of dust-laden air we actually supply more fresh air than is exhausted through the stacks. This maintains a small positive pressure. Our exhaust stacks are constructed to draw the air through a water spray. In this way there is no accumulation of paint fumes on the outside of the building. The water used to wash this exhaust is alkaline so there is no plugging of lines or pumps.

Baking the Finish

A feature of the Ford technique in baking on the finish is the use of electric ovens equipped with infra-red lamps, with gold-plated reflectors, to bake the prime coat.

"This consists of a series of double clam-shells carrying lights spaced so as to heat the bodies and bake the prime in seven minutes instead of the usual hour. The bodies travel on an overhead conveyor. This carries them between two synchronized conveyors that carry the clam shells of lights. The temporary assembly of lights and bodies travels together for the seven minutes and then the body emerges with the lights traveling back to surround another body—

"Other applications of this method of heating are in the form of light tunnels to dry off water after the acid wash and wet sanding. In this case the switches are arranged so that a wave of light accompanies the body through the tunnel, obviously reducing the power load.

"Since the radiant heat from the lights heats the metallic body which in turn heats the enamel, the heat loss in the room is remarkably low. In fact, there is no insulation provided about these lights. In the case of the primer 'oven' a ventilation stack is provided but the room temperatures are normal in the hottest weather.

"This method of baking finishes is, in fact, very economical and, in our Rouge plant, way under the cost of steam ovens."

Smaller batteries of infra-red lights are used in making repairs if the bodies are marred in handling, but repair work is held to a minimum by the management's insistence that the cars be finished right in the first place.

Painting Duralumin

"BUILD them light and we want them bright," the carnival trade advised Lee Eyerly, president of Eyerly Aircraft Corp. at Salem, Oregon, and builder of the Loop O Plane ride, an amusement thriller.

With this thought in mind Mr. Eyerly selected duralumin for body work on Loop O Planes because it is light and easily worked. But to make it bright with striking colors demanded by the carnival trade was quite another matter.

First attempts were made to coat duralumin with a red oxide primer but this material refused to adhere to duralumin. Next, sanding was tried. Still the primer refused to adhere sufficiently to warrant subsequent lacquer coats.

Swabbing duralumin with muriatic acid.

"Anodize," suggested the paint manufacturer; but this was not practical. A number of chemical preparations were recommended to react upon duralumin and give it "tooth" for priming. Still, results were not up to expectations. Nothing yet tried was entirely effective in removing oils impregnated in the surface of the metal during manufacturing processes.

Finally an aircraft manufacturer — one who uses duralumin in building 'plane bodies — was consulted. The 'plane maker's suggestions were simple, economical and practical. Duralumin would carry the primer and subsequent coats of paint or lacquer, he declared, if it first received a bath of commercial muriatic acid.

Eyerly Aircraft modified suggested methods to suit their own particular needs. Now sheets of duralumin for Loop O Planes are brought into the paint room, laid on the concrete floor, and swabbed with commercial muriatic acid (used full strength). After a few moments the acid bath quits fuming and the metal is given a thorough hosing with cold water.

When dry, the acid-washed cold-water-rinsed duralumin may be coated with the familiar red oxide primer, followed by coats of lacquer, with assurance that the primer will adhere and that the finish coats will not peel.

NOTE—In answer to the Editor's request for further details:

Sheets of duralumin 40-in. wide by 10-ft. long are laid flat on the concrete floor preparatory to

swabbing with an old paint brush kept in a wooden pot half filled with acid. Only one side of the sheet is treated. One or two sheets are treated at a time and, after the acid is flushed away with cold water from the hose, the sheets are stood on edge to dry in the paint room which is air conditioned by a single unit heater. Acid and lacquer fumes are removed from the room by an exhaust fan.—BEN MAXWELL.

Better Spray Guns

THE variety of types of spray guns that are on the market today afford the finishing foreman an opportunity to pick out any gun suited to his type of work. One of the new types of guns—the 12 or 14-cu.ft. gun—I consider one of the finest types that was ever produced because it gives the finisher a chance to produce at a greater speed, and at a reduction in the amount of material used on the same surface with a smaller type gun. It also gives him a chance to do a better finishing job and boost the quality of his work.

The new type spray gun is so compact in its construction that there are fewer parts to wear out or become congested. It gives the finisher a chance to have a wider fan spray so that he can use it for any type of work from a small job up to finishing large items such as transport truck trailer bodies and box cars. With this gun and a suction-feed type tank, a finisher has all the necessary items to produce his work with speed, quality and at a saving in the cost of material and labor.

I have equipped my department with the new type 14-cu.ft. spray gun and find that it has stepped up my production 35% to what it was a year ago. It also improves my work to where I am producing a finer quality of finishing on synthetic material than I did before purchasing these guns. —H. H. FORD.

Rudd Lacquer & Sealer Corp. Appoints Representatives

Mr. H. B. Ballard and Mr. E. B. Post have been appointed New England representatives by the Rudd Lacquer & Sealer Corp. of New York, N. Y., according to a recent announcement. Mr. Ballard will work out of Fitchburg, Mass., covering the western and central part of Massachusetts and northern New England.

Mr. Post will work out of Boston, covering Boston and vicinity and Rhode Island. Both men are well known to the furniture and wood finishing trade of New England. They are practical men who have spent years in the finishing field.

Gustav O. Zeller Offers Consulting Service

Mr. Gustav O. Zeller, well known chemist in the lacquer and industrial finishes field, announces the opening of his office at 342 Madison Ave., New York, N. Y. The announcement states that Mr. Zeller offers a consulting service to manufacturers who are interested in the research and development of all kinds of industrial finishes and coatings.

Mr. Zeller is well known in the industrial finishing field where he has had a wide and diversified experience with some of the leading manufacturers.

John Dahlquist to Represent Dolan in Jamestown, N. Y.

Mr. V. J. Dolan of the V. J. Dolan & Co., 1830 N. Laramie Ave., Chicago, Ill., announces that while in Jamestown, N. Y., recently, he completed arrangements for John Dahlquist to represent his company in Jamestown. Mr. Dahlquist has been active in wood finishing supply business for many years and is well and favorably known to the trade.

THE FINISHING OF *High Grade Furniture—III*

In this the final installment of a practical, informative article about operations and materials used in finishing fine furniture and radio cabinets, the author takes up lacquers, discusses their solid content and application, patching lacquer finishes, gloss and flat lacquers, bloom troubles, and rubbing new lacquer finishes.

BY R. JAY BURNS

EVERY FINISHER is confronted with the problem of choosing the lacquer that is best suited for his work. Some lacquer manufacturers have developed high-viscosity cotton lacquers that have a higher solid content than low-viscosity lacquers. They flow out well, are check-proof and dry to a hard tough film. Because they are 25 to 30 cents a gallon lower in price, it is a temptation to use them.

On radio cabinets and the cheaper furniture, these lacquers are being used to good advantage. For better finishing, however, it is our experience that the best lacquer obtainable is cheapest in the long run. It costs just as much to put on a cheap lacquer as a good one. The few cents saved on each gallon means so little on the total cost of each piece of furniture that it is far better to have the advantages of the better lacquer.

Lacquer Solids; Viscosity

For most work, a 21% to 27% solids low-viscosity cotton lacquer is preferable. It should be ready to spray with no thinning. Assume that a lacquer contains 27% solids and requires the addition of one part thinner to two parts of lacquer. It then has only 18% solids and this is the total film forming part of the lacquer. Three coats of this lacquer will be needed to give the same film thickness that would be had with two coats of a 27% solids lacquer which is ready to spray with no thinning. The viscosity of a lacquer (its resistance to flowing) has nothing to do with its solid content.

We encounter many finishers who believe that because two lacquers have the same solid content and have the same price they must be of equal quality. This is far from the actual facts. The license under which all wood lacquers are made, specifies the minimum price that must be charged for a lacquer in a certain solids bracket. For instance, a lacquer containing from 21% to 28% solids must be sold for not less than $1.50 a gallon in drums; for less than car load lots. Nothing is said about the quality of solvent,

resin, plasticiser and diluent that will be used. These things are left entirely to the discretion of the lacquer manufacturer, but they have a direct bearing on the quality of the lacquer and the manner in which it will work. Even though the quality of these ingredients is up to standard, there is still the matter of solid content. One lacquer may be built up to the maximum of 27% solids and another may have only 21% solids. Under the license agreement, they both will be sold at a minimum price of $1.50. In a three or four coat schedule, this 6% variable may mean the difference between an extra coat.

Since two wood lacquers look very much alike in the drum and have a similar odor, the only sure way to compare them is to spray them on a surface. Compare them for body, toughness, hardness, flexibility, adhesion, check resistance, flowing quality, etc.

To Spray Lacquer Properly

Having selected a good lacquer it is important to apply it properly. For most work a pressure tank is best. It will force a volume of lacquer up to the nozzle of the gun at an even pressure. In this way a good heavy coat can be applied without going back and forth over the work. Next to a pressure tank, a gravity-feed bucket is best. One of the disadvantages of it is that as the bucket empties, the pressure gradually becomes less. For this reason I suggest that if a gravity bucket must be used, swing it as high as possible so that a greater pressure will be had in the material hose. Aside from patching or touching up and shading, a cup gun has no place in production finishing in a modern plant.

For walnut and other dark finishes, it is sometimes desirable to have the lacquer manufacturer add enough walnut color to the lacquer to give it a slight amber cast. This will give an apparent added depth to the finish and sometimes it makes possible one less coat.

Generally, it is advantageous to lap coat or double coat, the work. This makes it possible to get more lacquer on with each handling of the piece. It has the further advantage of insuring a uniform coating. That is, a coat is sprayed one way (perhaps in sweeping strokes from side to side) then it is sprayed at right angles (perhaps with up and down strokes).

Here again, the lacquer manufacturer can cross you up. Unless he makes his lacquer so it can be lap coated without sagging, and still flow out properly, it is not the best lacquer that can be had for your work.

Flat and Gloss Lacquers

All lacquers are made as clear solutions originally. If a flat or dull sheen is desired, a pigment is added to the clear lacquer to deflect light rays and cause the duller finish. It is well to see that this flattener pigment is kept in suspension, else it may settle and the lacquer will again become glossy.

Flat or semi-flat lacquer is generally used on all surfaces where rubbing is not required. Thus, a table may have flat lacquer on the base and gloss lacquer on the top. The gloss lacquer is then rubbed down (probably with pumice stone) to a smooth, dense surface. The luster is more subdued and the piece has a richer appearance.

Gloss lacquer will usually build

Showers Easily Started

- In the bath, you turn a valve and the shower is on . . . you are enveloped by silvery reeds of water pouring forth in endless meter.
- In marketing a product, you turn on a shower of sales by providing a prepossessing finish that . . . by comparison . . . completely disarms competition.
- And how may this sales-stimulating finish be acquired? Ah! That's where we come in. We have a creative studio . . . artists . . . expert finishers . . . analysts . . . the finest of materials . . . and a yen to help you solve such problems. No charge whatever to reputable firms . . . no obligation. Won't you write?

ROCKFORD VARNISH COMPANY
ROCKFORD, ILLINOIS

up a heavier film than flat lacquer. For this reason it is customary to apply one or two coats of gloss lacquer and then use flat lacquer only as the final coat.

Most high grade furniture has two or three double coats of gloss or flat lacquer over sealer. The number of coats, of course, are governed by the quality desired. Three or four coats are probably no tougher or harder than two coats. The greater number of coats does give a greater depth to the finish and this brings out the natural beauty of the wood more clearly.

Rubbing and Polishing

Lacquer coats should be thoroughly dry before they are rubbed. Usually 24 to 48 hours of drying are required. This will depend on the number of coats applied and the drying time allowed between coats. If the lacquer is not entirely free of volatile solvent, it will not rub well. If it is very "green," blooming may result.

This bloom is caused by the green surface becoming scratched. The use of too coarse pumice, and rubbing with too much pressure may cause blooming; also the use of a heavy rubbing oil with a sticky residue. Paraffin oil is usually recommended for this work.

When a bloom occurs, the work should be sponged off with warm water and an alkali free soap. It should then be rinsed with clear water and wiped dry with a chamois. If the bloom is caused by scratching, it may be necessary to go over the work with a finer pumice. Soap added to the rubbing liquid will make it rub easier.

The rubbing operation should be performed only by skilled rubbers. This is a trade that is learned only after a long and exacting apprenticeship. Poor work here means more patching and more expense in the long run.

Patching Lacquer Finish

Some patching will always be necessary. This, too, is an exacting operation. A man must have many years experience in "frenching" finishes before he is a competent patcher. Unfortunately these men, like the old time typesetters, are too often itinerant. They earn good wages, can usually find employment (because there are too few really good ones) and as a class, they seem to gravitate toward John Barleycorn. What a pity that more of them do not have the ambition to become finishing superintendents.

In conclusion, to any furniture manufacturer or finishing foreman, I say, use this article as a general guide — but for specific help, call in your stain and lacquer salesman. It is a part of his job to help you get started right and he will enjoy helping keep things right for you. If he knows his job, he has been in many furniture plants. He knows what problems they had and how they were solved. Do not hesitate to invite him right into your plant. His visits will be to your mutual advantage.

Gehnrich Corp. (Ovens) Appoints Representative in Detroit

The Gehnrich Corp., Long Island City, N. Y., announces the appointment of Mr. Frank L. Neward, 608 Marquette Bldg., Detroit, Mich., as representative for the company in Michigan. His office is equipped to engineer and make recommendations with regard to industrial oven and dryer problems in metal finishing or baking and kindred operations.

WHEN IT RAINED

Remember those black cotton umbrellas the ladies used to carry? They had long, thin handles and a sharp point at the tip that could be a formidable weapon in the hands of an angry woman. The metal parts of these umbrellas were finished in Black. Hilo Black Baking Japan was a popular choice for this purpose, because it gave a glossy, jet black finish that did not fade, chip or crack, even after constant exposure to the weather.

Umbrella styles have changed. The ladies now shelter themselves under gaily colored umbrellas that are short and stubby. But there's as much need as ever for finishes that hang on through hard wear and constant exposure. Hilo Black Baking Japans are best sellers today, as they were 25 years ago, because they fill that need.

Prove their dependability for yourself. Fill out and mail the coupon today for a generous free sample.

HILO VARNISH CORP.

42-60 STEWART AVE., BROOKLYN, N. Y.

Boston Chicago

HILO

HILO VARNISH CORPORATION
42-60 Stewart Ave., Brooklyn, New York

GENTLEMEN: We'd like to try a free sample of Hilo Black Baking Japan.

Company.....

By.....

Address.....

City and State.....

IFM

CHECK TYPE WANTED

gloss	air dry
eggshell	baking
dull	250° F.
Rip-pl	350° F.
Crystal	

FOR USE ON:

Wood....., Steel....., Cast Iron....., Brass....., Aluminum.....

Reproducing Wood Grain
ON METAL SURFACES

Head of finishing department in a large manufacturing establishment tells in shop language the details of reproducing wood grain with hand tools — which is the logical method to use where a variety of small products of irregular and varied design are to be finished.

by Meyer Roter

THERE ARE a number of practical industrial processes by which to reproduce wood grain on metal articles. Each one has its particular merits and special adaptability for certain kinds of work. For example, lithographing is used on some work; also the process of printing photographic wood reproductions by specially made rollers, or the method of transference by decalcomanias, stencils, etc. Through any of these methods mentioned, beautiful creations of various wood finishes may be produced at low cost. These methods are most practical for simply designed articles such as trays, cabinets, metal panels, etc.—on work where there is large enough production of a particular item to warrant the initial investment of the equipment required.

The hand-graining process which I will endeavor to explain in this article solves the graining problem where there is variety in the design, size and quantity of work to be done. Hand graining experts in the past have been inclined to keep this trade somewhat to themselves. Their selfish view was that the knowledge and secret formulas should be handed down from father to son to preserve this knowledge as an art known only to a few favored craftsmen. The art of expert hand graining has in this manner been limited to only a few men who were really capable.

Skill of Operator Enters Picture

After all it is the skill of the operator that produces the best wood grain finishes. The formulas are essentially alike. If the procedure of wood grain reproduction were more widely known and practiced, the larger number entering into this field of work would improve its quality and as a result there would be a greater demand for it. Various wood finishes ranging from the blond woods to dark mahogany and walnut can be marvelously adapted to metal articles and used effectively in combination with different metal or plated finishes.

Anyone can do hand graining who knows the proper procedure. The quality and likeness of the

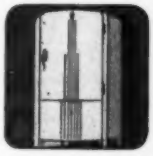
WE SPECIALIZE IN *Versatility*

A complete line of Egyptian Finishing Products for all requirements is available to the industrial finishing market . . . Lacquers . . . Synthetics . . . Varnishes and Paints. All formulated to do a specific job in the fields to which they are offered.

All kinds of metal products, furniture, paper, glass, fibre, leather and rubber are better finished with one or another of the many materials comprising the Egyptian Line of Industrial Finishes.

In addition to finishes for what may be termed standard needs, there are also Egyptian Finishes in novelty effects and for "hard to finish" products.

The next time you are in the market for a finish for a safety pin or a refrigerator . . . a pencil or a desk, be sure to call on us for information about an Egyptian Finish which will do the job better and cheaper.



The Egyptian Lacquer Mfg. Co.

Rockefeller Center **New York, N. Y.**

EGYPTIAN FINISHES

wood finish reproduced will depend upon the skill of the operator and the time he spends for working out the more complex operations of a better grain finish. In this article I intend to discuss the reproduction of mahogany, walnut and maple finishes. In these finishes are included most of the basic principles of wood graining.

Ground and Grain Colors
Pattern of Wood Grain

Wood finishes differ mainly in the ground color and graining material color, while the grain pattern or figure itself is developed by the operator. If the operator is interested in perfecting a good wood grain, his first step in developing that skill is to study the original grain of various woods—to even trace such grains with a pipe brush (graining brush) in order to learn the proper hand movements needed. Eventually the operator will acquire a definite mental picture of the wood finish and grain to be reproduced. The rest comes by practice.

In reproducing wood grains, those who are not yet initiated in the proper movements should start with the simplest grain forms—this in order to become thoroughly acquainted with the graining idea, and not to lose unnecessary time in attempting to execute difficult grains.

Oil-Solvent Colors
Water-Solvent Colors

The graining materials are divided into two groups; those of oil solvents and those of water solvents (distemper colors). Comparatively, there isn't much difference in the finished grain of either, when both are properly worked, but there is a difference in the manner each material is used. The oil solvent color dries very slowly. It is sticky but retains the grain and blends itself slightly. On the other hand, the distemper colors of water solvents dry quickly, especially in hot weather. Graining with this material must be done quickly. The advantages are: 1) It is a cleaner operation: 2) the work can be lacquered immediately after graining; 3) it can be worked quickly, and 4) in case of doubtful grain, it can be easily wiped off with a dry rag after which it is then ready to regrain. At the same time its disadvantage would be that the grain could be easily marred by touching any object before it has been lacquered. For that reason care must be taken in its handling until after the lacquering operation.

Oil graining materials are preferred by those who do graining on woodwork such as framework, doors, panels, etc. On large surfaces this material allows ample time to work out a good grain without its drying up before the operation is finished. However, in a factory where small metal articles are finished the distemper or water solvent grain is generally preferred. The fineness of the graining material enables the operator to produce a finer grain. It also allows production by quick graining and immediate lacquering.

Distemper Colors

It is the operator who can decide which material is best suited for his particular use. The distemper colors used for graining mahogany, walnut and maple wood finishes consist of raw sienna, burnt umber, Vandyke brown and ivory black. Vinegar is a bet-

SCOTCH
ADHESIVE
TAPES
For Industrial Finishing
are made
to meet industrial masking problems.
Tapes for color separation and striping
—tapes made to withstand high temperatures where baking operations are necessary—tapes that will aid you in speeding up production and reducing manufacturing costs.
Try Scotch Adhesive Tapes for industrial finishing—use coupon below.
Made and Patented By
MINNESOTA MINING & MFG. CO.
SAINT PAUL
MINNESOTA
This Trade-Mark Your
Guarantee of Quality
Under one or more of the following U. S. Patents: Nos. 1357080, 1779688, 1814132, 1864006, 1905070, 1954805, 1960435, Re. Nos. 19742, 19223.
MINNESOTA MINING & MFG. CO.
Dept SAT.
Saint Paul, Minnesota
Gentlemen:
We would like to try Scotch Adhesive Tape for the following
purpose:
Send sample roll to Mr.
Company
Address
City
State

ter solvent than water for thinning this material. It holds the color together better when graining. Some grainers use stale beer or water. With water as the solvent, a little soap should be rubbed in the graining material. This is to make the graining material adhere to the surface of the ground color without rolling off from the greasy effect. When using distemper graining materials a little glycerine is often added to retard the drying for proper graining.

Oil Graining Materials

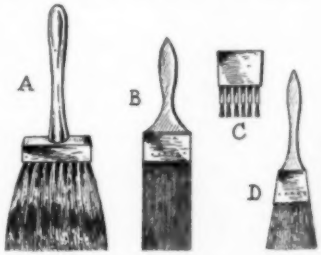
In oil graining materials the colors are ground in japan or boiled in linseed oil. They can be either prepared from dry colors or procured already prepared. The colors consist of Vandyke brown, raw sienna, burnt umber and ivory black. Turpentine is used as the solvent. In this material japan is added to help it dry a little faster. In graining woodwork the formula for this material includes whiting or rottenstone. This graining mixture is called "megilp." The purpose of this mixture is to give body to the graining material so that on rough surfaces of the wood the grain can be properly worked to stand out distinctly. However, when working on smooth metal surfaces such a mixture is entirely unnecessary.

Graining Tools

The tools used to produce graining are so varied that they could hardly all be named. The operator often invents and makes some special tool for certain grainings that he has simplified in practice. When he has mastered the art of graining, the operator can decide on what tools would best suit his graining needs. Among the graining tools used there are various types of brushes, combs, sponges, feathers, paper, rags, rubber rollers with grain impressions, etc.

The rubber rollers and combs are used mostly for flat surface woodwork. These tools cannot be used for small metal articles. Even on large flat metal surfaces the grain produced with the small rubber rollers and combs is not as good as brush work. Owing to its smoothness, the usual metal surface does not retain sufficient graining material when the rubber grainer is used. An assortment of brushes used for various wood grains includes: A rubbing-in brush, a stippler or flogger of long hog bristles, the badger-hair blender for overgraining, mottlers and pipe brush.

The sponge alone may become the most useful and perhaps the only tool used to produce a grain if it is properly handled. It cer-



A few of the brushes used for reproducing true wood grain effects on metal products.

Brush A is the badger hair blender, used either as the first step or last step in the graining operation.

B is a long-bristle hair stippler or flogger, used to produce coarse pores.

C is a pipe brush over-grainer. It is used to make or work out the broad veins and heart growth.

D is the fan over-grainer, used to produce fine vein effects. It can be obtained in many sizes and it also is cut to size accordingly by the operator.

ADVERTISING PAGES REMOVED

tainly is the simplest graining method to use. If only sponges are used for graining there should be an assortment at hand to take care of graining of different coarseness. One sponge can be used for applying or rubbing in the graining material; others can be used for the actual graining. A different sponge should be used for each color of graining material. When using a sponge for graining the degree of dryness or wettness of the sponge and the altered pressure with which it is applied to the surface for graining will determine the pattern and character of the grain.

Pressure variation and wavy movements in drawing out the grain produce the grain veins and grain shadings. On small articles, heart growth can be worked by roughly striping the figure with a camel's hair pencil brush and then working around it with a small sponge, just blending into the figure without taking it out, but giving it form.

On ordinary graining work the pipe brush is used for making the heart growth or veins of graining. The operator often cuts a brush especially for this purpose. Unless the operator knows exactly the kind of brush he wants to make, and how to make it, it is best to get the standard pipe brush from a supply house. In order to make the brush, the operator can take a regular paint brush, cut it down in size and thinness, and then cut a row of "teeth" or a comb effect in alternating manner of wide and narrow to suit his method of grain working.

The stippler or flogger brush is used to produce the coarse pores in the graining process. The four overgrainer is used over a grained surface or as a grainer in giving a thin vein line grain. The badger hair blender is used to blend and subdue the finished grain, taking out any harsh or sharp brush effects.

Whatever method is used in putting on the grain, it is important to avoid sharp or cross graining lines and abrupt stops. Graining must be done with a slightly wavy movement. A natural grain must be worked complete from one end to the other end of the object. The operator must learn to master in his stroke the necessary movements of zigzag wavyness, giving the work a vibrating effect and small oval effect.

The second and final installment of this article, to appear next month, takes up the cleaning and ground-coating of metal surfaces and explains in detail the skillful reproduction of finished mahogany, walnut and maple grain.

Lower Cost Upkeep Painting

Information and illustrations of interest and value appear in a new 4-page 2-color folder about the "Lower Cost of Maintenance Painting" just released by The DeVilbiss Co., Toledo, Ohio. Complete portable spray outfits of great variety for all kinds of wall, ceiling and product painting are shown, with specifications, engineering data and prices.

Humidiy of Industrial Air

A new illustrated book of 28 white enameled pages 8½x11-in., bound between stiff paper covers in four colors, reveals a great deal of practical information about humidity, and describes some of the latest instruments (Brown hygrometers) for recording and controlling humidity. A copy of this excellent book should be in the library of every industrial establishment. It is called "Catalog No. 6502" and can be obtained by writing the Brown Instrument Co., Philadelphia, Pa.

Machinery Painting...

APPLYING COATINGS OVER A GLOSSY SURFACE

In machinery finishing, see that the primer or surfacer and undercoats are flat or dull, as this kind of surface gives much better adhesion for the final finishing coat. If a glossy surface is to be painted it should be dulled by sanding or abrasive rubbing.

by E. A. Zahn
Works Laboratory
General Electric Co.

WHEN APPLYING successive coats of paint over a hard glossy surface, it is almost certain that the final coats will soon peel off due to poor adhesion to the undercoats. This is especially true when using air-drying materials, and often it occurs on baked finishes. The adhesion may seem to be satisfactory when the materials are first applied but after they have thoroughly dried and become brittle, the film separation begins to take place.

Occasionally there may be found a baking system where final coats can be successfully applied over a glossy undercoat. The reason that some of these systems are satisfactory is due partly to the softening of the undercoats during the final bake. This allows the finish coat to knit to an otherwise glossy surface. However, a prime or intermediate coat that does not have much gloss always gives more satisfactory results.

Many of the priming paints now in use are dull or "flat" when dried which, in turn, gives the finish coats a much better chance to adhere. This type of primer does not need to be sandpapered before finishing.

When a priming paint or any other paint except the final finish dries glossy it should be rubbed lightly, but only enough to remove the gloss. A high-gloss paint generally causes the sandpaper to gum up; if this happens the operator is liable to scratch the surface beyond repair as the next coat will only magnify these imperfections.

Probably the best method, although slightly more expensive, is to rub the surface with waterproof rubbing paper and water. This applies to air-dry finishes other than lacquer. A lacquer coat should be rubbed with rubbing paper and gasoline or oil-free naphtha. Naphtha, when combined with the cutting action of rubbing paper, is often much too strong for use on air-dry paints.

When repairing small spots it is always well to use extra precautions against making deep scratches. The following method is often used when sanding lac-

Cut out a Baking Operation

● A manufacturer of steel office equipment was producing a fine, durable grained finish by baking on a coat of synthetic primer, applying the coloring and graining coats, and baking again.

"You can get a finish that is just as attractive and durable with only one bake," an M&W representative told him. "Our Synpex enamels air-dry quickly and can be re-coated before baking. Apply a coat of Synpex primer, put on the graining coats after it is dry, and then bake the whole system."

Maas & Waldstein does more than supply good industrial finishes of every description. Their expert engineers assist manufacturers speed up production and reduce finishing costs per unit without sacrificing finish quality.

On request, an M&W finishing engineer will call and help you solve your finishing problems.

Maas and Waldstein Co. Newark, N. J.

Branch Offices and Warehouses . . . 1336 Washington Blvd., Chicago . . . 1228 W. Pico Blvd., Los Angeles

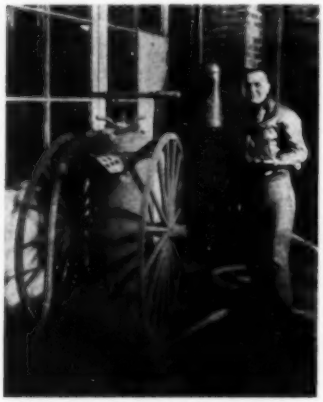
LACQUERS **PIONEERS IN PROTECTION** ENAMELS

quered surfaces: A small amount of caustic-free soap is dissolved in the water before rubbing and is later washed clean with water. This system is also used for a final rub on lacquers when a high gloss is not desirable. The soap forms a cushion which retards the cutting action of the abrasive paper so that the sharp particles do not scratch too deeply. By increasing the amount of soap, a smoothing action takes place on a lacquer surface without greatly reducing its gloss.

After the gloss has been removed from a surface, it is very important that the solvent used in the finishing material is such that it will not cause lifting due to the fine scratches. There are several other methods of reducing gloss on undercoats. One of the most inexpensive and yet satisfactory is to use ordinary curled hair such as is found inside of upholstered cushions. This, of course, applies only to the type of paints that are soft enough to be affected by regular cushion hair.

Probably the best example of adhesion is noticeable when applying an otherwise high quality primer on smooth steel. This same primer, applied on similar steel which has been sandpapered, will give much greater adhesion. The life of a paint finish is generally measured by its ability to adhere to another surface.

MAAS & WALDSTEIN FIRE CHIEF



Since Maas & Waldstein Co. make industrial finishes and flammable liquids are their principal raw materials, Fire Chief David Mitchell's position is a responsible one. Portable fire extinguishers form his primary defense against fire. It is also important to rush hose lines by means of portable carts to the fire, so that plenty of water can be used if necessary. In addition, any section of the plant can be flooded with water from automatic and manually-operated sprinkler systems. Mr. Mitchell also serves his firm as Traffic Manager.

Mixer Bulletin Reveals Latest Developments

Illustrations and descriptive facts about a new perfectly guarded bearing for use on electrically driven liquid mixers of finishing materials, are contained in a 4-page 8½x11-in. 2-color bulletin released by Mixing Equipment Co., 1024 Garson Ave., Rochester, N. Y. Illustrations and facts about the "Lightnin" off-center mixing method and a group of "Lightnin" mixing units are also included in the bulletin. Every user of finishing materials should have one of these informative bulletins for future reference.

Prevents Gas Explosion

A 12-page bulletin (8½x11-in.) describes and illustrates The Flame-Otrol, a combustion safeguard—a gas burner safety device designed to shut off the gas and prevent an explosion in case of flame failure. It effectively safeguards against loss of life, property damage and tie-up of production schedules. It is completely approved and listed by associated factory mutual; cuts off fuel instantly upon failure of the flame. Heat has no effect.

This new safety device is a product of Wheelco Instruments Co., 1929 S. Halstead St., Chicago, Ill.

66E-656

ALUMINUM SYNTHETIC

AIR-DRYING — Is tack free in 20 minutes. No baking necessary. Characteristics compare with high temperature baked aluminum finishes.

BRILLIANT SMOOTH DURABLE — Provides a finish of exceptional brilliance and smoothness, has excellent adhesion, durability and weathering qualities.

DIPPING CHARACTERISTICS — Has phenomenal flow and dipping characteristics leaving the surface free from sags, runs or drips. It is equally suitable for spray application.

NON-SETTLING — Only normal stirring is required before use—our formulation eliminates settling out.

THE STANLEY CHEMICAL CO.

EAST BERLIN, CONN.

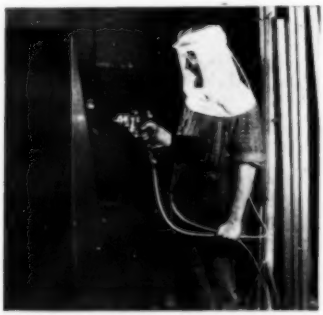
LACQUERS - SYNTHETICS - ENAMELS - JAPANS

A Subsidiary of THE STANLEY WORKS, NEW BRITAIN, CONN.

Helmet - Type Respirator

The Binks Mfg. Co., 3114-40 Carroll Ave., Chicago, Ill., offers a new Helmet Type Respirator especially adapted to overhead and outdoor paint spray work. It protects head, neck and shoulders. Light in weight, easy to wear. Muslin hood is attached to cap and fits snugly over the shoulders. Has large pyralin window, easy to clean.

Cap has air connection at back. By taking off a "Tee" at the air connection to the spray gun and by



Operator is completely protected by helmet.

using an air adjusting valve, a small amount of air can be brought into the helmet by means of a small length of hose. Air thus brought into the mask pushes downward and out, thereby keeping outside fumes from operator.

Office Equipment Finish (for Metal)

"S-W Satin-Glo" is a new specialty finish for office furniture and business machines, etc., for which many unique features are claimed. This new finish is offered in two spraying and two dipping qualities to meet requirements of the trade. It is said to produce a finish of pronounced

What's New...

beauty, luster and mar-resistance in one coat; is also resistant to severe abrasion, perspiration, chemicals and cleaning soaps.

Satin-Glo is built around a chemically evolved vehicle developed to produce the toughest known finish when baked. The finish is said to have advantages in every essential respect . . . . The manufacturer (Sherwin-Williams Co., Cleveland, Ohio) reports that for seven months, test batches of Satin-Glo were left uncovered to determine their "tank" characteristics, and by simply adding thinner to compensate for evaporation, the finish showed no evidence of skinning, separating, flooding, settling or thickening at the edges.

Other tests proved its merits as to: opacity, sensitiveness to baking temperatures, adhesion after baking, uniformity of gloss, color stability, abrasion resistance to printing, economy in production, and ability to withstand numerous chemical reagents.

Satin-Glo is being offered in olive green, and other colors if quantity requirement justifies special runs.

Quick Air-Drying Aluminum Synthetic

The Stanley Chemical Co., of East Berlin, Conn., announces a new Air-Drying Aluminum Synthetic which dries tack free in 20 minutes. This material, which is their No. 66E-656 Aluminum Synthetic, is of exceptional brilliance and has excellent adhesion, durability and weathering qualities.

It has phenomenal flow and dipping characteristics and imparts a

THE FURNITURE INDUSTRY

The S-W Furniture Finishes Consultant

S-W LACQUER DEVELOPMENT DIVISION
New lacquer finishes

S-W CHEMICAL PRODUCTS RESEARCH
New colors, new dyes, new pigments

THE S-W FURNITURE FINISHES DIVISION

The men on this staff devote their entire time to the formulating and making of finishes and finishing systems for our furniture manufacturing customers.

S-W RESIN RESEARCH DIVISION
New vehicles

S-W PAINT AND ENAMEL DIVISION
New enamels

S-W VARNISH DEVELOPMENT DIVISION
New types of both flat and gloss varnishes

GENERAL RESEARCH DIVISION

Concerned with development of basic new ingredients which, in turn, are passed on to the various specialized departments shown on this chart. This so-called "long range" research has created new and revolutionary materials for every branch of Sherwin-Williams business. Whatever your finishing problems, write The Sherwin-Williams Co., Cleveland, Ohio, and all principal cities.

SHERWIN-WILLIAMS INDUSTRIAL FINISHES

bright, smooth finish in a one-coat job, drying free from sags, runs or drips. On dip application the material should be used without reduction while for spray application it should be thinned to meet specific requirements. The material does not settle out; only normal stirring is required before use.

No. 66E-653, which was first used on sled runners this past season by one of the country's largest manufacturers of juvenile toys and playground equipment, has created unusual interest. Long baking at extreme temperatures is unnecessary with this air-drying material, hence production schedules can be materially increased.

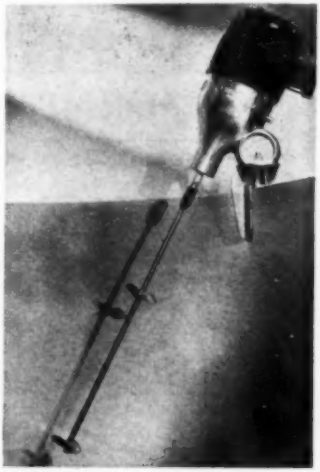
Portable Mixer Doesn't Leak Oil

The Mixing Equipment Co., Rochester, N. Y., has added a new feature to their line of "Lightnin" Portable Mixers in their guarantee of "no grease in the mix".

Using a new type pre-lubricated sealed ball-bearing in the important extended bearing, the manufacturer absolutely guarantees that no grease or oil will ever run down the shaft, either from operation or careless lubrication. This improved method of grease prevention was selected after exhaustive tests of seals, oil traps, etc., covering a period of three years.

Many of the seals tested were satisfactory for definite periods, but no seal will last indefinitely. Thus sooner or later a valuable batch of material would be spoiled. Seals also caused definite wear of shaft or tube which are customarily of a corrosion-resisting alloy.

The life of the sealed ball-bearing, after exhaustive breakdown tests, is expected to be even longer than the standard bearing due to adequate lubrication and because no grit or dirt can possibly enter this bearing. Maintenance at this point is thereby reduced to zero and a double saving in time and lubricant is made.



For effective, safe, economical mixing.

Careful engineering has made it possible to add this feature at no extra cost. Replacements can be made on existing mixers in use at the usual low charge for replacement and repairs.

Glass and Metal Etching Solutions

Glass frosting materials for application to every kind of glassware have been developed by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa. These four materials are the results of many years of research for the exacting duties of frosting lamp bulbs.

A glass-etch solution has been formulated which will produce permanent white markings on glass. Being very fluid, it can be applied with a rubber stamp. It will dry rapidly with a small amount of heat.

A metal-etch solution is for application by rubber stamp to brass, copper and silver. It produces a permanent and pleasing black finish.

OXFORD
VARNISH CORPORATION

directs attention
to its line of . . .

INDUSTRIAL and
TECHNICAL . .

PAINTS
VARNISHES
LACQUERS
ENAMELS
PRIMERS

Color and design engineering of individual and distinctive finishes

DETROIT, MICHIGAN

drying rapidly in the air without heat.

Acid glass-frosting solution No. 2 is an etching material in paste form. It produces a fine grained white satin frost on any type of glass in 10 to 15 seconds. It is unique in the soft quality of the surface which it produces.

No. 1 safety frost solution for glass is also in paste form. It produces a finish similar to that produced by No. 2, but requires treatment of the glass for 5 or 6 minutes, to produce similar results. Being less corrosive, fewer precautions need to be taken in its use. The relative slowness of its action is an operating advantage where the article is to be immersed in the solution, making it easy to obtain an even frost. Normally, designs are applied to glass by coating the surfact with paraffin or lacquer and cleaning off the portion which is to be etched.

Alcohol-Proof Lacquer

The Rudd Lacquer & Sealer Corp., 80 Cliff St., New York, N. Y., announces a new alcohol-proof clear lacquer (W-1007) a new high grade gloss wood lacquer which has excellent resistance to alcohol. It is heavy-bodied and may be reduced in proportions of two parts of lacquer to three parts of thinner to regular spraying viscosity. However, since this product is based on the new type of formulation, it may be sprayed at a very much heavier viscosity. Experiments in the laboratory showed that when reduced in the proportion of four parts of lacquer to three parts of thinner, it flowed out perfectly. At spraying consistency more solids are deposited per coat, probably enough to save a coat. The company's theoretical figure on total solids of W-1007 is 24%, and when reduced for spraying it has a total solids of over 12% at the gun.

Small Spray Outfit

The small portable spray outfit illustrated here is the latest development of The Electric Sprayit Co., 220 N. Broadway, Milwaukee, Wisc. Quick facts: Displacement of compressor, 2.58-cu. ft. of free air per

Complete; convenient; low-priced.

minute; a perfectly balanced compressor fitted with aluminum alloy piston and connecting rod; spraying pressure at spray gun, over 30-lbs.; air intake filter at compressor; oil and moisture filter to clean compressed air; compressor is V-belted to a ¼-hp. motor, 1750-r.p.m.; Sprayit NU gun has one quart aluminum container and a nozzle that produces round, fan and angled spray; a 2-gal. material tank assembly can be furnished with unit when desired.

A Plastic "Putty"

A new plastic compound has been developed by Maas & Waldstein Co., Newark, N. J., to take the place of putty and other substances used for cementing glass to glass, metal, or wood, calking crevices, making joints of various kinds, and other purposes.

This new compound, known as "Plasticalk," does not, like putty, dry, harden, crack, shrink, or lose its bond with age, but retains its plasticity and adhesiveness indefinitely. It is unaffected by water or humidity, and does not support fungus-growth. It is easily applied with an ordinary putty knife and, when in place, will not sag or flow, even if heated by a nearby electric lamp. It adheres strongly to glass, metal, and wood, and seals made of it remain tight in spite of exposure to moisture and to wide variations in temperature.

BUILT TO EXACT SPECIFICATIONS

When a man wants a perfect fit in his clothes he goes to a custom tailor. He knows that "clothes make the man" only when they are made *for* the man . . . tailor-made to his exact measurements.

And what is true of a man's suit is equally true of industrial finishes. The careful purchaser of a finish for his product doesn't simply order "50 gallons of white enamel at your best price." If he is wise he considers the economy of greater coverage, of lower labor costs, and of the elimination of excessive rejects. He orders enamels that have been specifically designed to meet his production requirements—"tailor-made" for his plant and product.

Call in the A & W representative for consultation on your finishing production difficulties. From his study of your product and manufacturing processes, the A & W laboratory will be enabled to produce a finish that meets your needs exactly...an A&W "Tailor-Made" Finish.

AULT & WIBORG CORPORATION

NEW YORK, N.Y. CINCINNATI, OHIO

In Canada—Aircraft Paints, Limited, Toronto

Builders of Fine Industrial Finishes

Cementing Celluloid

In reference to an inquiry in February issue, page 70, concerning the cementing of celluloid, there are a number of methods and also a number of materials used successfully in this line of work.

The solvent that will give the best results is acetone. When acetone is used it is necessary to work rapidly due to the quick evaporation of this solvent. The acetone is applied to the celluloid parts that are to be cemented together. It dissolves the celluloid, forming a jelly-like substance which will cause the two pieces to adhere to each other, providing they are firmly clamped together.

A good grade of lacquer thinner can be substituted for acetone. In places where it is not practical to clamp the celluloid parts together, clear model airplane cement or clear model airplane tissue cement can be used. Some companies use clear lacquer for this purpose. However, model airplane cement can be purchased at a 50% saving and, in most cases, it works much better. The model airplane cement is the material most commonly used.

Most companies engaged in the manufacture of celluloid products have a lot of clean, clear scrap celluloid on hand. If such is the case they can make their own cement by dissolving this scrap celluloid in acetone or a good grade of lacquer thinner for 24 hours. Some companies use ground film chips or old scrap celluloid to make cement. However, the cement produced in this manner is somewhat discolored.

When bothered with the celluloid parts puckering, pulling or shrinking, a retarded thinner can be used as a solvent to make the cement. Or, if you prefer, one teaspoonful of castor oil can be added to the cement solution. This prevents the cement from drying too hard, hard drying being the cause of puckering. However, precautions should be taken in the use of castor oil retarder; if too much is used the cement will dry too slowly and there is a possibility that it will never dry. —H. H. GLINKE.

Questions Answers

Air-Line Pipe Slants Wrong Way

In looking over Feb. 1938 issue of this magazine, I was greatly interested in the article on compressed air by Mr. W. B. Crawford (pages 32-43).

Having personally sold and installed a number of compressed air plants for industrial finishing companies in this section, (Longview, Texas), I wonder if I may be allowed to disagree (slightly) with some of Mr. Crawford's recommendations?

He says, "it is advisable to slant the pipe back toward the storage tank," whereas I have found that a pronounced slope in the other direction is of more aid in removing air-borne moisture. In the latter method the flow of air through the line is with that of the moisture, and rapidly carries

WOOD LACQUERS

There are no spectacular developments in wood lacquers. There is, however, the accumulation of years of testing and steady improvement resulting in our present line of gloss and flat lacquers developed for the wood working industries.

Where the maximum dollar value in solids and smooth-flowing solvents is required; where perfected resistance to cold-checking, abrasion, moisture, printing; beverages and light are desired, we shall be more than glad to submit samples for any desired test.

Within the comparatively narrow price range for this type of lacquer, we feel we can and do supply a material unsurpassed for its specific purpose.

THE VARNISH PRODUCTS CO.

5208 Harvard Avenue Cleveland, Ohio

THE PREFERRED GENERAL SOLVENT

SOLOX

U.S.I. PROPRIETARY SOLVENT

REG. U.S. PAT. OFF.

Ideal for

- CUTTING and THINNING SHELLAC and VARNISH
- GENERAL CLEANING
- FUEL in LAMPS, STOVES

Better than Completely Denatured Alcohol FOR MANY PURPOSES

Write for Solox folder No. F-1

U.S.I. INDUSTRIAL ALCOHOL CO. 60 East 42nd Street, New York, N. Y.

it to the separator. In the method advocated in the article, the fluid flow is against that of the air, and remixing constantly takes place.

My point can be easily demonstrated by attempting to blow moisture out of a tin trough with a spray gun. If the slope is upward away from the nozzle, the water forms little ridges which try to flow backward against the air current. By reversing the inclination, the ripples work rapidly down the trough, and the surface is dried in a fraction of the time required for the first set-up.

In several instances I have been called in to help straighten out air systems already installed, and have found that the oil-and-water separators used were too small for the load. To get around this, I have adopted a larger cleaner.—M. T. PATE.

Finish on Old Cherry Turns Milky-White

In reference to H. R. Mfg. Co.'s inquiry about the refinishing of cherry wood in the February issue (pages 62-65), I notice this company is confronted with the problem of refinished antique cherry wood turning grayish or milky white during a period ranging from six months to three years after refinishing.

This is a case of the varnish remover not having been completely removed before refinishing. The H. R. Mfg. Co. further states that the piece usually starts to turn milky from the bottom, working upward.

Here is my analysis:

The varnish remover is not thoroughly removed after the old finish is stripped down. To overcome this, the piece should be scrubbed thoroughly with a strong soap solution and washed off with alcohol to remove the wax base of the varnish remover. This should be done as quickly as possible after the old finish is removed, so that the varnish remover will not have a chance to pentrate the wood. I further suggest that a varnish remover that comes in thick paste form be used.

The reason the refinished piece starts turning milky white or grayish from the bottom of the refinished article is due to the heavy use of shellac. The shellac, of course, seals this unremoved varnish remover from the finish coat and this is the reason the trouble does not show up at once. Then, after a period of six months to three years, as the H. R. Mfg. Co. states, the piece starts to turn milky from the bottom up. This is due to moisture deteriorating the shellac—which would naturally start from the bottom of the legs of the antique piece, because the bottom of the piece comes in contact with the floor and is not sealed against moisture. The same trouble will be noticed around a scratch in the refinished piece. This deterioration of the shellac allows the unremoved varnish remover to come into contact with the outer finish which, in turn, causes the surface to deteriorate.

Remove your varnish remover thoroughly and your troubles will be over.

H. R. also states that he omits the filler coat because the filler tends to darken the refinished piece. This can be overcome by applying a wash coat of clear

Noroy Furniture Lacquers

(NON-ROYALTY)

QUALITY PRODUCTION FINISHES

ATTRACTIVELY PRICED — ECONOMICAL TO USE

W-1007 Guaranteed Alcohol Proof Gloss Lacquer. High solids content—24%. Completely resistant to alcohol. Dries hard and fast. Stands reduction of 2 parts Lacquer to 3 parts Thinner.

W-1025 High Gloss Wood Lacquer. 24% solids content. Stands reduction of 2 parts Lacquer to 3 parts Thinner.

S-1225 Modified Sanding Sealer. 24% solids content. Sands in 20 minutes. Stands reduction of 2 parts Lacquer to 3 parts Thinner.

C-210 Special Sanding Coater. 24% solids.

Write for Samples and Prices

RUDD LACQUER & SEALER CORP.

80 Cliff Street, New York Factory—Rahway, N. J.

4 ANSWERS TO YOUR INDUSTRIAL ADHESIVE TAPE PROBLEM

PERMACEL
THE PAPER MASKING TAPE

JONFLEX
FINE CLOTH MASKING TAPE

INDUSTRIAL
COARSE CLOTH MASKING TAPE

UTILITAPE
WATERPROOF, CLOTH ALL-PURPOSE TAPE

•

SAMPLES ON REQUEST

INDUSTRIAL TAPE CORPORATION
NEW BRUNSWICK, N. J.

wood lacquer that has been reduced with four parts of thinner to one part of clear wood lacquer. If an even coat is applied, this will prevent the oils of the filler from penetrating too deeply, which is the direct cause of the filler darkening the wood.

If you wish, two coats of clear wood lacquer may be applied after the filler is thoroughly dry and well sanded. These two coats of clear wood lacquer should be thinned very little, sanding between coats and allowing at least 12 hours drying time between coats.

The old pieces that have gone bad should be stripped off and done over—that is, providing the wood does not appear to be spongy, which is a sign that the varnish remover has penetrated too deeply to ever be removed.—H. H. GLINKE.

Stripping off Nickel-Plating

We do considerable nickel and brass plating in our plant and occasionally have nickel-plated pieces brought in from around the city to be replated. We have to strip all the nickel from these pieces, and are now doing this with an emery buff wheel. Isn't there some method by which we can take off the old nickel quicker and cheaper than by buffing?—H. W. Mfg. Co. (Drapery Hardware).

An acid-stripper method of removing the nickel-plating is to dip the parts into a mixture consisting of two parts sulphuric acid and one part of nitric acid, using this acid mixture cold. The acid will work rapidly, therefore the parts should be dipped and removed while the operator watches the progress of the stripping. If parts are left in the acid too long, the other metal will be attacked by the strong acid.

After removal of the nickel-plating by immersion in the acid dip, the parts should be rinsed in cold water.

To remove chromium plating, use a solution consisting of about 80% muriatic acid and 20% water—using same cold. Afterward, rinse in cold water.—A. B.

The most practical method to strip nickel from most any base metal is to use an electric stripper. First, make up an acid solution as follows:

To every five gallons of sulphuric acid, add one gallon of

Just the machine . . .
for coating small objects

FILWHIRL
ENAMELER

water and 2-oz. of glycerine. The solution can be prepared in an earthenware crock. When the acid solution is made, it must cool for about a day before being used. Then hook it up on the direct current from the generator in line with the other plating tanks, but in reverse current; no rheostat is necessary. The work to be stripped is suspended in the solution by a rod from the positive anode pole. On the rod from the negative cathode pole is connected and suspended in the solution a sheet of lead or sheet of copper.

When the work is hung in the solution on hooks and current is turned on, the nickel-plating starts to come off immediately. In a few minutes, when all the nickel is off, it automatically stops working without attacking the base metal. That is why a rheostat is not necessary.—MEYER ROTER.

Lacquer and Shellac

We are interested in knowing what the effect would be if shellac and lacquer were mixed and applied. Also, what would be the results if an undercoat of shellac were applied in place of sealer and then lacquer applied on top of the shellac, and the same rubbed dull or polished?

What would be the difference in shrinkage if shellac and lacquer were used, or if lacquer sealer and lacquer were used? Would there be any difference in cold cracking and the lasting quality of the shine (luster)? Also, would the finish have any tendency to chip or peal?—Casket Mfr.

Ordinary lacquer and shellac are not compatible—although with certain brands of lacquer and under certain peculiar conditions, a finisher may "get by" with mixing shellac and lacquer. If you wish to use shellac and lacquer together successfully, it is practically necessary to use a mixing lacquer for this purpose. This mixture will make a very good sealer, though I don't believe it is as good as a high-solids straight lacquer sealer.

Mixing lacquer and shellac may be mixed half and half and reduced, if necessary, with ordinary alcohol.

Shellac makes a very good undercoat for varnish, but for lacquer, no! Lacquer over shellac would probably result in chipping, peeling and checking. Also, the adhesion would be poor. However, in so far as rubbing and polishing, the result would be no different than where lacquer is used over a lacquer sealer—but, as al-

IT CUTS COSTS, puts on better surface coatings, speeds up production in product-finishing departments. Use the FIL-WHIRL ENAMELER for coating such items as nuts, bolts, coil springs, hair pins, wood and metal toys, and the like . . . you'll find it will coat every day many more articles, with no loss of enamel. Send us samples of your products; we will finish and return them for your inspection. . . . No obligation whatever. Write us TODAY!

THE LEON J. BARRETT CO.
Grafton Street, Worcester, Mass.

Again

Paasche

Solves

A Difficult

Coating Problem

To protect lithographed finishes on sheet metal to be formed, it is necessary to lubricate the sheet or the die—

—Paraffin is an ideal lubricant but difficult to apply uniformly, in a barely discernible coat.

Paasche Engineers solved this problem with the above *Portable Automatic Conveyor Unit.* It coats 70 sheets (size 36-in. x29-in.) a minute—both sides. All spoilage is eliminated.

Our engineers will be pleased to show you short cuts to lowered costs and savings in material.

Send sample of your product — tell us production desired—No obligation.

Paasche Airbrush Co

1917 Diversey Parkway

Chicago, Illinois

ready explained, the ultimate result would be a breaking down of the finish.

There is no shrinkage in lacquer; it is just the solvents leaving the film. Since there are more solids in shellac, naturally there would be a heavier film. Also, shellac is glossier and looks as though a heavier film remains on the surface, but a "27% solids" sealer has better body-building properties. The lacquer can be sanded down to a surface better than shellac. A shellaced surface "slicks" up easily but if wiped off, the orange peel effect is still there and it takes a lot of sanding to get rid of it. Lacquer cold checks over shellac very easily, if two or more coats are applied.—F. R. BOYNTON.

Ebonizing Maple and Other Hardwoods

I would like to know if there is a stain or solution that will penetrate wood, such as birch or maple, with a jet black throughout so that if the piece of wood is sawed in the center with ¼-in. on each side it would be just as black on the inside as on the outside. There are penetrating stains that will penetrate to the depth of 1/32-in. in a medium soft wood, but the wood to be used must be of a hard nature so that it will not dent or mar easily.

The material we have been using up to this time has been known as Maccassa ebony, which is black with dark gray streaks throughout its lengths. The lumber cannot be gotten in a good grade but has large defects and rots in the lengths. We use it for a top molding on a counter-band

which is 1¼x⅝-in. and in lengths of about 10, 12 or 16-ft., and some is very short.

The last load we ordered was rejected because we could not possibly use such poor lumber and we were told it is the best that can be gotten. As the price is about eight times as high as maple, with very short lengths, we thought that if a stain was made you could give us the desired information if possible.

The idea is to have a hard top mold, so that it will wear well, and when the top finish is worn off the wood will still be black.—L. M. P.

EDITOR'S NOTE: *In reply to the above, here are excerpts from an article on this subject by Mr. E. Perry, published in Feb. 1933 issue of* INDUSTRIAL FINISHING.

There is only one practicable method to completely and therefore satisfactorily impregnate woods with coloring agents; this is by the vacuum process. Any other means resorted to may become useful, depending on such factors as: The species and porosity of the wood to be stained, the depth it is to be impregnated; whether water solution would be detrimental to the finished work; or whether the lesser penetrative like aniline dyes or pigmented stains must be used for certain reasons.

The cellular structure of wood naturally lends itself to the process first mentioned, whereby practically all air contained within the fibers can be withdrawn; then permitting free access of the coloring solution to completely permeate and saturate the wood by ingress from the ends—following the natural sap veins of the

ECLIPSE
"GAT"

for SPEED

Wider, more even spray . . . lighter and easier to handle . . . fewer parts, simpler construction . . dependable, high-speed operation.

ECLIPSE AIR BRUSH COMPANY, INC.
Newark New Jersey

Japco
DEVILAC

For the really tough jobs, concrete, wood and steel

DRIES in fifteen minutes.

WITHSTANDS acids, alkalis, gasoline, and most chemicals—can be brushed, sprayed or dipped.

WATERPROOF—Can be applied to one day old concrete.

RETARDS water seepage.

The long waited for answer for the perfect coating for concrete floors.

Manufactured in TEN colors.

Manufactured only by
JAMESTOWN PAINT AND VARNISH CO.
JAMESTOWN, PA.

Used first—Makes your finish last

METALPREP

The Complete Metal Cleaner

Removes Rust

Removes Oil and Grease

Etches the Metal

Makes Paint Stay on Metal

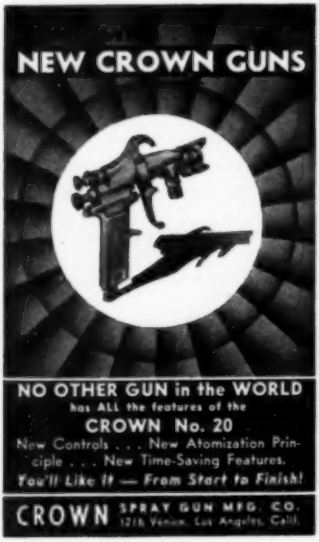
Metalprep has been used for a number of years to prepare Iron, Steel, Aluminum, Aluminum Alloys, Galvaneal, Galvanized-iron and other alloy metals for paint finishes.

When Metalprep is used to prepare such metal products as auto bodies, buses, trailers, refrigerator and other cabinets, washing machines, etc., it increases the life of the finish since it eliminates paint failures which are due to rust, grease and improper cleaning of the metal surfaces.

WRITE FOR DETAILS.

Neilson Chemical Co.

6564 BENSON ST. DETROIT


NEW CROWN GUNS
NO OTHER GUN in the WORLD
has ALL the features of the
CROWN No. 20
New Controls . . . New Atomization Principle . . . New Time-Saving Features.
You'll Like It — From Start to Finish!
CROWN SPRAY GUN MFG. CO.
12th Venice, Los Angeles, Calif.

wood. Obviously, the process is successful with practically any reasonable size and thickness of wood by governing the temperature and vacuum, but principally the length of time of immersion in the solution under pressure.

As just inferred, staining and deep impregnation are facilitated by heat, therefore water solutions are quite generally the rule, for three primary reasons, namely:

1) The economy of water as the dye solvent, which also is safest to use under high steam pressure.

2) Wood tissues have a natural affinity for water, which insures greatest penetration and absorption of the coloring solution.

3) In the main, the water-soluble dyes seem to be more light-resistant than other types of dyes.

The vacuum process stains the wood clear through, so that turnings and deep carvings from solid wood show uniform coloration, as with natural fancy woods.

"Piano Key" Methods

A method for staining and finishing black piano keys, as reported by one authority, is as follows:

First, the wood is allowed to soak in water for 15 hours, after which the keys are removed and placed in a vat of dye solution. Here they are kept under a steam pressure of 10-lbs. during 24 hours. In this system a steel-cylinder vat is generally used. However, aqueous solutions of some acid or chemical stains react on steel and other metals to the detriment of the solution or to the tank containing it, therefore wherever practicable the tank should be of wooden construction.

The keys are not removed for another 24 hours. In the mean-

time the solution cools down. This is to prevent checking of the wood in drying. The stained keys should be dried in a kiln, starting with a high humidity and gradually lowering same until the wood is dry. After drying, the keys are sanded on a belt sander, finishing with fine paper. Finally, they are polished on a high-speed buffing wheel. Graphite is used on a felt or cotton buffer in the final polishing operation. The resultant finish has the appearance of ebony wood.

Another method for staining piano keys is:

Boil 2-lbs. of logwood chips in one gallon of water; or, in place of the logwood chips, use 2-oz. of logwood (solid) extract. Immerse the wood in this solution for at least 15 minutes; then drain off and allow to dry in a good circulation of air. Immerse in a second solution consisting of 4-oz. (¼-lb.) of green copperas (sulphate of iron), or of sulphate of copper, to one gallon of water. Similarly, remove and allow to dry in a warm well-lighted place—but the drying should not be hastened by artificial heating.

Finally, pass the wood through an alkaline solution made by dissolving ½-lb. of sal soda into one gallon of water. After passing through this third solution, the articles should be rinsed in clear water to clean them thoroughly.

The next description applies rather specifically to selected hard maple. The data is: Into one gallon of distilled water, dissolve by boiling, the following:

Permanganate of Potash	12-oz.
Copper Sulphate	4-oz.
Iron Sulphate	4-oz.

Heat this solution to 160°F., and immerse the wood for a few

MAGIC TACK RAGS remove specks, lint and sand particles—bring out that deep, smooth luster, produce a faultless surface for white or colored finish. Why use "home made" tack rags when you can buy MAGIC TACK RAGS at trifling cost! They are tackier, do not dry—are dust-proof and spontaneous combustion proof. Packed in dozen and gross lots or more. Made only by the

Wm. A. Juergens Co.
4036-40 Lagrange Street,
Toledo, Ohio, U. S. A.
If your dealer does not carry Magic Tack Rags, write us for sample.

GRAINING PLATES
bring out the
QUALITY *you*
have built in
YOUR PRODUCT

AMERICAN
ELECTROTYPE COMPANY
104 E. MASON ST.
MILWAUKEE, WIS.

SMOOTHER SPRAY

—and smoother work, smoother production, with the Milburn paint spray gun. Wide, wet spray—easily adjusted.

Write for New Catalog.

Alexander Milburn Co.

1402 W. BALTIMORE STREET
BALTIMORE, MD.

—KKPS—
Kwik Koting Pigment Stains—All Shades—Permanent and Non-Bleeding

—KKES—
Kwik Koting Edge Sealer—For Veneer Edges and End Grain

—KKPC—
Kwik Koting Primer Coat—Air Dries to Recoat in 5 Minutes

—SYNTHETICS—
Air Drying Synthetic Varnish Sealer . . . One Coat Air Drying Synthetic Varnish Finish for All Woods.

Write for Complete Information About These and Other Scientifically Formulated Products

Made by

THOS. E. O'CONNOR CO.

410-416 Hart Street, Chicago, Ill.

minutes—say 15 minutes; when dry, re-immerse and dry again. There will be a precipitation of the excess chemical salts on the surface when dried, and this must be thoroughly removed by rubbing with a dry cloth, before recoating. Now, into one gallon of distilled water, dissolve 12-oz. of aniline hydrochloride (aniline chloride) which is the salt from combining aniline with hydrochloric acid. Heat this solution to the boiling point; then apply two dip coats as before, each time allowing the wood to dry thoroughly. The ebony black color does not appear at once, but usually develops within a few hours.

Checks in Finished Plywood

When we finish a cabinet containing plywood veneers, our usual procedure is to put on a coat of sealer and two coats of flat lacquer. Then, after sufficient time has elapsed for the finish to dry properly, the surfaces are rubbed to produce a high luster.

Now the trouble we have is that after the rubbing operation, those portions of the veneer that were taped joints either shrink or swell up, with the ultimate result that there are open checks, splits and cracks. What is the cause of this shrinking and swelling of the veneer?—Cabt. Mfr.

In reference to those veneer joints showing, that is not the finish; it is your veneer. When it shows open or low joints, that means the veneer was not dry enough when it was laid; if it swells it was too dry.

If you want a high gloss finish,

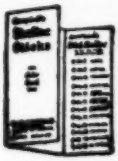
why not use two coats of gloss lacquer instead of flat lacquer? Flat lacquer was never made to withstand a good rubbing. If you really want to use flat lacquer, mix in a little gloss with it, say three parts of flat to one part of gloss; this will help.

The cracks are there before you rub; you can see them if you look closely, but after you rub you can see them more easily. Your veneer, before laying, should be dried down to about 6% or 7% moisture content. Then I don't think you will have any trouble. If I could see this work I would be more able to tell you what really is your trouble.—BEN J. STUDER.

It is obvious that your wood has not been properly conditioned. See my comments on this in my article starting on page 19 of January INDUSTRIAL FINISHING.

If there is too much moisture in the wood at the time of finishing, it will dry out later and the joint will shrink. If the wood is too dry, it will take on moisture later and a ridge will swell up at the glue joint. Inasmuch as Brooklyn is low and surrounded with salt water, it is a particularly poor spot for the successful handling of wood. Even though a piece of wood is properly conditioned, I can well believe that during some of your foggy or humid days the wood will take on much moisture. Conversely, wood that has taken on much moisture might be too quickly dried out with a shift of the wind and bright, hot weather. —R. J. BURNS.

It looks as though the glue man is at fault here. Under the swelled-up places the veneer is not



STICK SHELLAC

Better than anything else for repairing imperfections in wood, marble, etc. Made in 70 colors to match all finishes. Write for FREE Color Card and descriptive booklet.

THE M. L. CAMPBELL COMPANY
706 East 19th Street
KANSAS CITY, MO.

"NO-TARNISH"

No. 21	No. 22	No. 23
Brass	Silver	Copper

Durable clean finish for polished metals. In use nationally for 20 years.

Specify if for Outside Use

Samples on Request

CLEAVELAND
LABORATORIES & MFG. CO., INC.
445 Wilson Ave., Newark, N. J.

COPPER BRONZE POWDERS

LIGHT NATURAL DARK ANTIQUE

A complete stock of Copper Bronze Powders in all shades and finenesses. Write today for sample—or—send a small article to be finished for your examination.
INCREASES EYE-APPEAL—DECREASES COST—WRITE NOW.

The Mitchell-Mayer Co., St. Louis, Mo.

Aluminum Paints *Aluminum Powders* *Aluminum Pastes*

Kindly mention INDUSTRIAL FINISHING when writing advertisers

glued to the core. If you will tap the swelled place you will probably find it loose from the core. The glue has been applied either too thinly or carelessly.

The shrinkage part is the result of too much water in the glue; also, a poor core improperly dried will cause shrinking and distortion. If you are using water to rub with, (water and pumice) and if the lacquer film is not waterproof, this water rubbing may be causing your trouble. However, if you are not using water or a compound that contains considerable water, your trouble can probably be traced to the gluing room.

In the gluing of those plywood panels, if an even coat of the proper glue is used, if the core is dry, and if the panels are placed in the press and left there the proper length of time, you should have no trouble with your veneered stock.

I have seen the same thing you complain about happen many times, and I always found the gluing was at fault—unless water was used in the rubbing operation. This is assuming that the veneer and core are in the proper dried conditions.—F. R. BOYNTON.

BEUGLER STRIPER

See Your Dealer

Beugler Mfg. Co.

Dept. F, 4818 W. 2nd St., LOS ANGELES

Bull Dog Quality Lacquer Sticks

(New and Entirely Different)

The perfect Lacquer Burning-in Cement. Will not raise or soften and is not affected by any type of lacquer.

LARGEST LINE OF COLORS

Write for Color Card, showing both Lacquer and Shellac Stick Colors and for the name of nearest distributor.

Universal Stick Shellac Co., Inc.

28 Howard St. NEW YORK, N. Y.

Buys Wrinkle Finish Patents

New Wrinkle, Inc., Mutual Home Bldg., Dayton, Ohio, has bought all of the wrinkle finish patents owned and controlled by The Chadeloid Chemical Co., The Kay & Ess Chemical Corp. and The Kay & Ess Co. It has taken over all the licenses and rights of these corporations and all litigation has been settled.

The policy of New Wrinkle, Inc., is to promote the widest possible use of these patents. The numerous pending patent applications and the new developments that are expected to be patented are offered to responsible members of the paint and var-

Pyroxylin Lacquers — Synthetic Enamels — Insulating Varnishes—Baking Enamels

IMPERVIOUS PRODUCTS

FOR INDUSTRIAL USE

IMPERVIOUS VARNISH COMPANY

KOPPERS BUILDING, PITTSBURGH, PA.

Protective Coatings — Finishing Varnishes—Primers and Surfacers

ENAMELS IMPERVIOUS VNC PRODUCTS

nish industry, a very simple license at a new low royalty rate. All previous patent licenses for the use of these patents will be cancelled by the licensees signing the new license agreement. The Kay & Ess Co. and The Chadeloid Chemical Co. have signed the same license which is being offered to others.

As a matter of policy it is the intention of New Wrinkle, Inc., to promote the sale of wrinkle finishes by suitable publicity and to add further inventions and patents by additional research for the benefit of the industry.

Licenses are open to all responsible manufacturers in the industry engaged in this field.

Lawrence-McFadden Co. Building New Factory

A letter from the Lawrence-McFadden Co., Philadelphia, Pa., states that the company has broken ground for a new factory building at State Road and Shelmire St., Holmesburg, Philadelphia, Pa., on a 2½-acre plot of ground beside the main Pennsylvania Railroad line to New York. The building will be 2-story, concrete, approximately 81x101-ft. and will contain about 18,000-sq.ft. of floor space. This particular building has been designed and the machinery has been planned to make it the most modern and uptodate equipped wood-finishing materials plant in the country. The manufacturing system will be gravity feed. The building is expected to be completed by June 15th and will take the place of the one that was destroyed by fire April 7, 1937.

Despatch Oven Company Reelects Officers

On February 1st, 1938, at the annual meeting of the Board of Directors of the Despatch Oven Co., Minneapolis, Minn., the following officers were reelected:

Pres.....A. E. Grapp
Vice Pres. & Gen. Mgr.....H. L. Grapp
Vice Pres. & Pro. Mgr...C. P. Doherty
Vice Pres. & Chf. Eng.....G. C. Keyes
Secy. & Sales Mgr.....F. H. Faber

The Despatch Oven Co., manufacturers of industrial ovens, dryers, and furnaces as well as laboratory ovens and cabinets, and bakery ovens, reports that the most outstanding progress was made last year of any time during the history of the company.

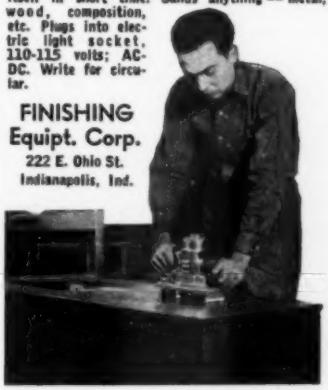
FLOCKS
Wool - Cotton - Rayon
- In All Colors
- For All Equipment
- For Every Purpose

SUITABLE FOR:
Rubberized Fabrics—Flock Printing—Velour Paper—Suede Paper—Moulded Plastics—Spray Gun Equipment (For Woods, Metals, Paper and Glass)

Let us help you develop or reproduce that special effect or color tone. Send us sample or description of what you need.

MYERS - LIPMAN
Wool Stock Co., Inc.
283-287 W. Broadway, New York
Pioneer Manufacturers Since 1875

"DUAL-BLOK"
Portable Electric
SANDER-RUBBER
QUICKER—BETTER THAN BY HAND
Picture shows "Dual-Blok" sanding undercoats. Labor and paper savings up to 50%. Pays for itself in short time. Sands anything — metal, wood, composition, etc. Plugs into electric light socket, 110-115 volts; AC-DC. Write for circular.



FINISHING
Equipt. Corp.
222 E. Ohio St.
Indianapolis, Ind.

Industrial
FINISHING

Distributed to Executives and Foremen Finishers in industrial plants where finishing costs are applied with finishing equipment.

Published the 18th of each month by PRACTICAL PUBLICATIONS, Inc.
222 East Ohio St., Indianapolis, Ind.
Telephone .....Riley 6771

•

President.....A. T. Gaumer
Vice Pres. and Editor.....W. H. Rohr
Treasurer and Adv.-Mgr.....E. A. Dosch
Secretary.....R. E. Suits

•

Subscription Rates Per Year
U. S. and Possessions.....$2.00
Canada and Foreign Countries.....$3.00

EDITORIAL

High Pressure Selling

Inasmuch as the continuance of all our finishing operations depends upon many successful sales of our companies' products, it is worth a moment's notice to give some thought to a few timely comments by H. B. Brown, merchandising manager of the Philco Radio and Television Corp. at a recent sales conference. He said, in part:

"It is high-pressure selling—alert, keen and intelligent as contrasted with low-pressure (lazy, indifferent and uninformed selling) which gives us volume production. Volume is the key to better quality of merchandise at lower prices.

"Present-day business men and salesmen need more training, more complete knowledge of the merchandise they're selling and more of that sales ability which aids the prospective customer in arriving at a decision. The latter might be construed as synonymous with high-pressure selling.

"High-pressure does not mean false claims, exaggerations or misrepresentations. It simply means seeing to it that the public buys the things it ought to own. People respect the man who sells them and who really accelerates their decision to buy.

"Alert, aggressive, energetic high-pressure selling has given the United States the highest standard of living in the world. It is responsible for the building of the finest homes for the general population. It has been important in developing, comparatively, the healthiest, best-dressed, best-informed people on earth.

"High-pressure selling has resulted in the American people owning more than 20,000,000 automobiles, more than 30,000,000 radios, millions of electric refrigerators, washing machines and vacuum cleaners."

Refer Your Problems To Specialists

Back of the smooth workings of so much fine production equipment that we see in operation in large factories today are the research men and engineers of concerns who have supplied that equipment. Many of the firms advertising in INDUSTRIAL FINISHING have experimental departments and experienced, well-in-

formed men who are continually at work solving the problems of large users of materials and equipment. With these fountains of practical knowledge anl production engineering available, smart executives find it advantageous to make extensive use .of them. In that way they are placed in close touch with the latest developments—the practicable workable things that have been sifted out at the expense of someone else.

Obviously, it is a matter of good business to profit by the research and experience of others —as well as by the mistakes of others.

Recently the Editor had the privilege of visiting the several divisions of a large plant in which equipment for modern finishing is manufactured. Every division had its own experimental research and testing laboratory. Each division or each one of the group of factories was tooled up to economically manufacture a separate and distinct quality product. At the time of my visit, the plant superintendent of a large organization that could use some of this company's special automatic equipment was there with some of his company's products for a demonstration, to give the equipment a thorough try-out before making any decision to place an order. His company could have built experimental machines for the work (at a great expenditure of time and money, of course) but they wisely preferred to turn their problem over to the engineering specialists in that line and to consider the purchase of equipment that had been previously developed and proved to be satisfactory for the job.

Spot Baking a Repair In Synthetic Finish

As the baked synthetic finishes for metal surfaces become more and more widely used there is a greater need for an effective method of baking patches and repaired places in this kind of finish. This need exists in the production factory as well as in the refinishing shop.

The usual piece of apparatus for spot repair baking is a baking lamp usually an electrically heated element positioned in front of a large cone-shaped reflector which is mounted on an adjustable arm supported by a substantial floor stand or pedestal. This heating element and reflector are pointed toward and close to the area to be baked and then turned on to bake the finish for anywhere from a few minutes to an hour.

Among the several experimental developments now under way, all of which are attempts to improve the present baking lamps, one that the Editor was privileged to see in a large automobile manufacturer's laboratory, makes extensive use of the infrared ray. Our dictionary tells us that infrared ray pertains to or designates those rays which lie just beyond the red end of the visible spectrum, such as are emitted by a hot non-incandescent body. They are invisible and non-actinic and are detected by their thermal effect. Their wave lengths are longer than those of visible light and shorter than those of radio waves.

The laboratory infrared baking lamp consisted of a cluster of seven copper-plated cone-shaped reflectors, each reflecting the heat

from a 200 watt incandescent lamp bulb. This baking lamp is giving excellent results . . . producing a heat up to 300°F. when focused at a certain distance from a section of painted automobile body. The reflectors were copper-plated especially for this service. Here is something that may lead to interesting new developments in the field of bake finishing—perhaps to a new kind of electric oven.

Letters from I. F. Readers

(Continued from page 9)

ture billiard tables and are interested in securing a material to finish off our rail caps which are veneered in mahogany, rosewood and walnut. We have been finishing them with shellac and then waxing them. This is the best we have found so far. However, if there is a synthetic material, varnish or anything that will prevent burning, we would like to know about it. Cigarettes are laid on the rail cap and in no time the cap is covered with black burns. I cut the ad. out, expecting to write the company, but misplaced it.—W. G. T.

Movies Use It, too

In reply to your request . . . . regarding an article for your magazine relative to furniture finishing materials and results obtained, I wish to quote the following, as expressed by my furniture finisher, Mr. Samuel Ruggeri:

"I am pleased to inform you as to results obtained in our Finishing Department. First, we have solved a problem of preventing the oxidation of our highly polished metal fixtures by using special lacquer advertised in INDUSTRIAL FINISHING Magazine and made by the ——— Co.

"We have also accomplished wonderful results in refinishing mahogany and walnut furniture by obtaining a blond finish through using —— for bleaching. Formula directions must be followed to the letter in order to be successful; and by using —— bleaching sealer positive protection can be had. Finish with clear water-white lacquer and rub to a satin gloss."

Naturally, in the motion picture business, we are called upon to do all sorts of trick finishes under forced conditions because of the limit of time we have to decorate our sets. Therefore, we have found many articles advertised in your magazine that have proved to be a great aid to us in performing our work.—A. C. Wilson, Manager, Property Department, Warner Bros. Pictures, Inc.

"Duralite" Dulux?

In February issue of INDUSTRIAL FINISHING, page 8, there is an inquiry from some concern asking for information on Durolite enamel designed particularly for commercial refrigerators.

One of our customers, a manufacturer of commercial refrigerators, has adopted the name "Duralite" as their trade name for High Bake "Dulux," and we believe this is the product covered by your inquiry. — L. C. Streeter, Western Mgr. Industrial Sales (Chicago) du Pont Co.

Safety-Hat Lacquer

We note with interest your item (No. 122) on page 39 of the January issue, regarding "perspiration proof lacquer." We are confronted with a problem of waterproofing a hard black vulcanized fiber which we use in the manufacture of safety hats. If, in your opinion, this product would be suitable for our application, we would appreciate any further information, samples, etc., which you could forward us.—L. L. Co. (Everything in Safety).

Paper Coating

We are interested in obtaining a source of supply for a flexible coating that can be applied to various kinds of materials such as paper, fabrics, leather, etc. This coating must have a smooth polished surface and stand a temperature of approximately 200°F. When subjected to heat it must not give off any odors of volatile gases. In fact, we are looking for a coating similar to cellophane.

Any information you can give us as to who could supply a coating of this kind will be greatly appreciated. —I. H. Mfg. Co.

Porcelain Enamel Repair

In your October issue, on page 7, M. H. inquired for information on "the repair of porcelain enamel." We are also interested in this matter and

would appreciate your forwarding to us the names of manufacturers and distributors who have material and information concerning porcelain enamel repair.—European Radio Co.

Luminous Paints

Kindly send us names of manufacturers who make fluorescent paints. Also, any listing of ink makers who make ink that contains a thremo-plastic resin such as is used for transferring designs or trade marks on cloth. The method of transfer is by the use of a hot iron. —E. Y. Co.

Can seme reader give us information in answer to the second part of this inquiry?—Ed.

Preparing Concrete and Plaster for Paint

A great deal of trouble is experienced in painting concrete and plastered surfaces, due to the presence of alkali.

The best way to eliminate trouble is to first test the surface to be painted with a solution consisting of:

grain alcohol .....(oz.) 2
phenolphthalein .....(dram) ½
water .....(pint) 1

Apply a drop of this solution to the surface to be painted. If it turns red, the surface should first be neutralized with a solution consisting of 1½-lbs. of zinc sulphate crystals dissolved in two quarts of warm water.

This neutralizing solution can be liberally applied with a paint brush. Allow the surface to dry thoroughly; then dust off the surface well before any paint is applied.—H. H. Glinke.

Machine for Coating Small Parts

In the January 1938 issue of INDUSTRIAL FINISHING, on page 4, we noticed an ad. describing a filwhirl centrifugal enameler for coating small parts. Please furnish us with some descriptive literature on this and also any other information that might be helpful in explaining its operation, character of the work that can be done, and whether it is suitable for metal and wood parts. We are very much interested in equipment of this kind.—L. & C. Co.

This inquiry has been referred to the manufacturer of the machine, who will supply all the information asked for.—Ed.

Cedar-Odor Paint?

I understand there is a paint that can be applied to clothes-closet walls, which smells like cedar and will make the closets moth-proof. Kindly advise me where this product can be bought, the price, and any other information you may have on the subject.—G. J. N. (Refinishing Engineer).

We have never heard of this. Can some reader tell us something about it?—EDITOR.

Is Today's Finish Better?

Referring to a letter published under the above title in Jan. issue, page 89, wherein Mr. Boon asks the opinion of oldtimers on the furniture finishes of today, this is something that interests me very much. A year ago I made a request similar to that, but made it somewhat stronger in my remarks (and I think the Editor didn't like it).

I did not say they could not make furniture finishes as good today as they did years ago, but I said I believed that finishes on much of the furniture today were not as good as they were years ago.

A lot could be written about furniture finishes today . . . but it would stir up a hornet's nest.

Just what chance has the foreman got to judge his work, when so many pieces are turned out or finished in one day? Does not that apply to other workmen on the production line as well as to himself? Years ago nearly all furniture finishers were paid on an hourly or weekly basis, whereas today it is nearly all piece work. As a result there is more tendency to speed up production to meet sharp competition.

Is it not the ambition of every foreman and superintendent to make as great a showing as possible, regardless of where the cutting has to be done on labor or materials? Look how the material, regardless of how good it is, is cut and cut until there

The development of the mechanical striper, in its many forms, has put into the hands of the finisher a tool that requires no particular skill to operate and yet produces a more perfect and lasting stripe, as well as being many times faster.

What's New in FINISHES!

Case History No. 17

A metal cabinet manufacturer requested information on a white finish that would be harder and more durable, speed up work in the finishing department, and have better color retention than the finish he was using.

The requirements necessitated an entirely new type of finish obviously of the baking type that dried by polymerization instead of by oxidation or evaporation.

The problem was completed thru work in several laboratories. The finish developed resembles porcelain in appearance and hardness, and, due to greater toughness, wears considerably longer than the old finish. It requires baking at normal temperatures, but for shorter period. White and pastel tints produce lasting finish without discoloration. The finish (Case History No. 17) is ideal not only for metal cabinets, but for electrical household appliances, hospital and laboratory equipment, metal furniture and other metal fixtures as well.

Manufacturers interested in this problem or in the solution of a specific problem of their own, are invited to write, without obligation, furnishing all details to — INDUSTRIAL RESEARCH, DIVISION OF WIPE-ON CORPORATION, 105 HUDSON STREET, NEW YORK. A complimentary copy of "Case Histories" will be sent covering this problem and others, such as, burn-proof enamels; two-tone finishes; eyelet coatings; 10 minute air dry metal finishes; magnesium alloy finishes; airplane finishes and seam compound; and coatings to resist alkali, alcohol and acids, together with a solution of your individual problem.

This interesting development is another example of how modern research is meeting the demands of industrial finishing departments and is giving them less costly production. —Advt.

is practically no life or body left in it—just to make the showing, and often probably to keep the job.

Years ago nearly all furniture was made of solid wood, whereas today nearly everything is covered with thin veneer. Yes, there are as good materials made today as there ever were. Who is in a better position to judge the merits of the finish on present day furniture than the men who have positions like myself—who have to go into homes and patch and repair furniture that has all kinds of finishing material on it, and which has come from all parts of the country? I am sure there is no one better able to answer your question, Mr. Boon, than myself. You have worked under the old conditions and now the new. You are probably using a material, purchased from one manufacturer, which gives you every opportunity to study it and try it out in every possible way.

If there is something wrong, or if you are dissatisfied with the results or the goods, write the people from whom you get the material. They will be glad to help you in every way and at their own expense, and will welcome any complaint you have to make, because their goods stand on their merits and they are back of them.—Geo. D. Watt.

Classified Advertising

Rate: 45 cents per line per insertion—minimum $1.35

POSITION WANTED.

Have 25 years' experience as Foreman Finisher on wood and metal. Very high grade finishes and production methods. Address IF-688, care Industrial Finishing.

INSTRUCTION.

Evening classes in Philadelphia and New York in Paint Technology, Synthetic Resins, Industrial Processes, Metals and Alloys primarily for non-technical business men. Elementary and advanced courses by mail. DR. BROWN, Industrial Consultants, 3404-6 Baring St., Philadelphia, Pa.

INDUSTRIAL SALESMAN WANTED.

Middle Western Territory. THE STILLE-YOUNG CORPORATION, manufacturers of Lacquers, Stains, Sealers, Fillers, Enamels, Paints. 2300 N. Ashland Ave., Chicago, Ill.